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BULLETIN OF THE HISTORY OF MEDICINE

ORGAN OF THE AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE
AND THE JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

Editor—HENRY E. SIGERIST

Associate Editor—GENEVIEVE MILLER

VOLUME XIX MARCH, 1946 NUMBER 3

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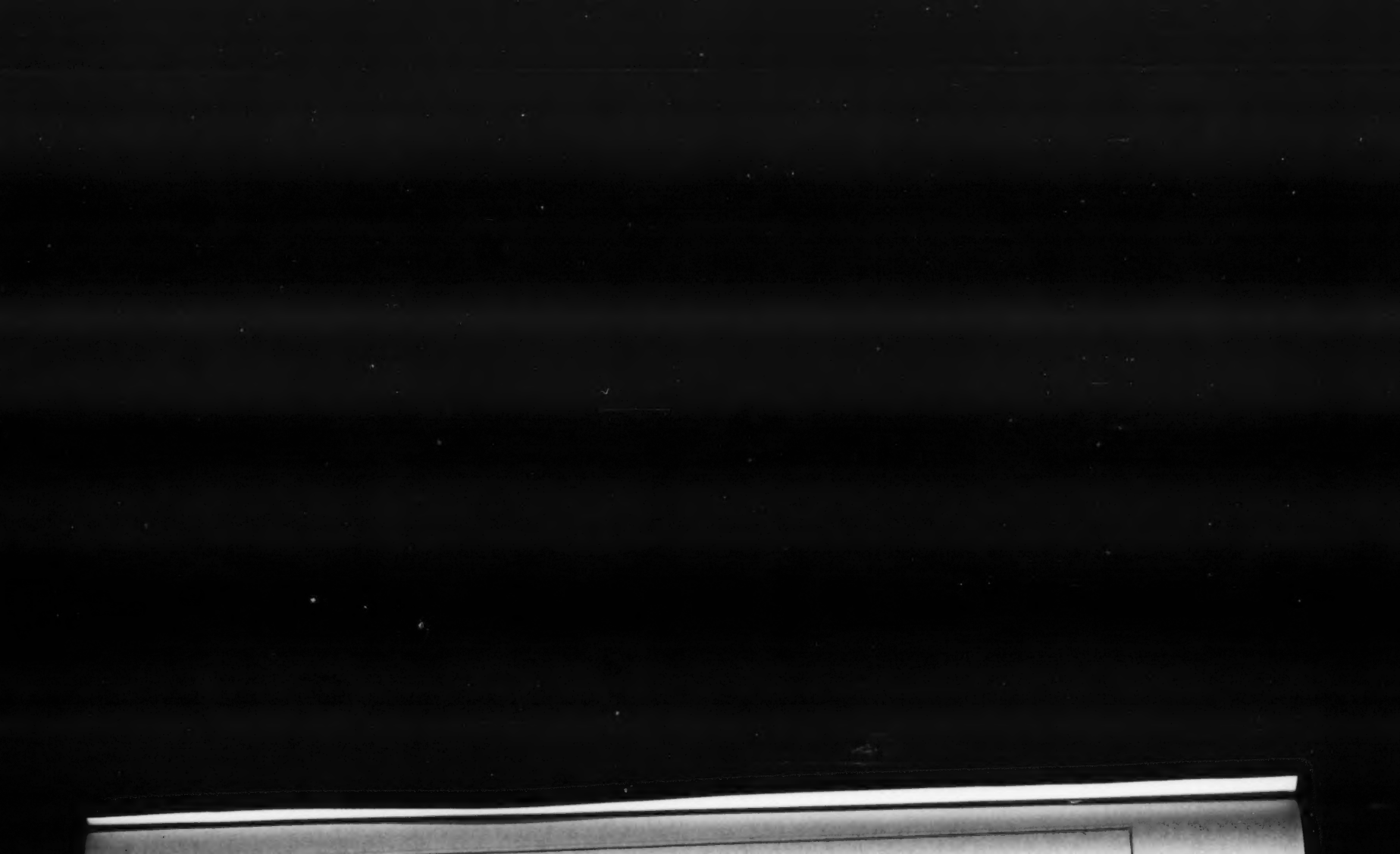

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MEDICINE: ITS NATURE AND DEFINITION

WILLIAM DEPREZ INLOW*

Au point de vue philosophique et dans l'acception la plus large du mot, la médecine, bien comprise, doit être définie la science de l'homme sain et malade, la science de l'homme souffrant et réagissant, la science de l'homme et des rapports qu'il entretient avec le reste de la nature; en d'autres termes, la médecine est la science de tous les faits et de tous les moyens qu'il faut connaître pour diriger habilement les ressources à l'aide desquelles on parvient de concert avec la nature et sous la discipline de ses leçons, soit à conserver la santé, soit à guérir les maladies, ou du moins à les adoucir, à les rendre plus supportables. En un mot, la médecine est tout ensemble la science de la santé et l'art de la conserver, la science des malades et l'art de les traiter, de les diriger et de les guérir.

ÉDOUARD AUBER

Comprehensive and Restricted Views of Medicine

It is astonishing that in the numerous writings of recent years broaching the general problems of medicine such little attention has been given to the fundamental question, "What is Medicine?". There was a time when medical works began with definitions of the subjects treated, but today this is outmoded. Much of the perennial discussion as to whether medicine is a science or an art, or both, rests for its decision on clear cut presentation of just what is meant by the term *medicine*.

*From the Inlow Clinic, Shelbyville, Ind.

Medicine may be conceived of in a narrow restricted sense or in a broad general one; or indeed in any number of senses between these extremes. Each author will select that meaning which fits his purpose and his general medical world-view. It is asked only that he define his concepts clearly. Medicine in its broadest connotation merely takes in subject matter which with a more narrow definition is placed under other headings. For instance, there are those who would maintain that Public Health is not to be considered an integral portion of medicine, but a field of knowledge and endeavor existing apart. Unquestionably, those who so affirm have ample justification; for, just as in the case of dentistry, there are practical reasons for such separation. But it must not be forgotten that groupings and delimitations fully warranted in the prosecution of the affairs of life do not appear in the same light when considered from the vantage point of general theoretic appraisal.

Those who take the restricted view would have medicine remain today and in the future that which it was in the past—the study of disease and the prosecution of its cure with the physician as sole representative. When, in the advancement of knowledge and the evolution of human progress, new disciplines appear as offspring from the parent trunk they would grant these freedom to develop in their own right. Medicine aptly has been called the mother of the sciences. Many of these offspring obviously no longer belong in the distinctive medical family.

Those who accept the general view see the subject matter of medicine constantly increasing and evolving with its practitioners becoming ever more numerous and divisible into types. Preventive and social medicine take their place alongside their older sister, curative medicine; and together they welcome the whole brood of medical sciences. The medical scientist and the public health officer play rôles no less important than those of the physician himself. In this interpretation medicine maintains itself as one of the great and permanent fields of human knowledge and endeavor; indeed as one of the few primary ones. It is too large to be appropriated by any of its component disciplines; too tolerant to take seriously the rivalries of its various devotees.

Richard Koch [1] would have medicine synonymous with *Krankenbehandlung*. Just as the old definitions indicate, he says, it is the artistic preparedness, *Kunstfertigkeit*, to treat patients, and not the science of diseased and well organisms, together with the theory of their modifi-

[1] Koch, R., Der Begriff der Medizin, pp. 9-31 in Philosophische Grenzfragen der Medizin. *Vorträge des Institutes für Geschichte der Medizin an der Universität Leipzig*, Band 3. Leipzig; Georg Thieme, 1930.

ability, that constitutes the true subject matter of medicine. Medicine he likens to such forms of human capability as building and painting. It is a thing apart, a field distinctively individual, something that cannot be confused with any other human activity. But that which such a concept gains in concreteness, it loses in value. In the development of a medical philosophy which has as its chief aim the systematic and critical presentation of medical theory, such a viewpoint has limited usefulness; for it will omit the major portion of that which the physician both wishes and needs to have clarified. On this pragmatic basis alone, it seems wise to reject a restricted meaning which would make of medicine no more than the discipline of therapeutics.

Medicine as Knowledge and as Action; Theory and Practice

Knowledge and action—these are the two primal divisions from which any discipline may be viewed. Knowledge lives in the minds and hands of men; it rests inscribed in books. It consists of facts, theories, principles; of methods, rules, set ways of doing things. It is something highly scattered and intangible; yet when gathered together into systematic treatises it constitutes the corpus of that which is known. Further there is the realm of *action*, domain of doing and thinking. It consists essentially of three different lines of essay: the effort to create new knowledge and method; the transmission of the knowledge and method already existing to the oncoming generation; and lastly the application of this knowledge and method to the affairs of life. Medicine thus is composed of knowing and of applied skill; of science and of art, of ἐπιστημη and of τέχνη.

There has been accumulating as the result of the experience of man through the centuries an ever increasing body of medical knowledge. This has been made up of innumerable contributions by a great number of men and lies recorded in the immense medical literature of the world. This storehouse is open to all. Though constantly growing, it is in itself an inactive thing. It can be added to, passed on to others, and drawn upon in the effort to control nature and man. This whole body of knowledge and method may be termed the *Theory* of Medicine. Even if all medical activity suddenly and completely were to cease, this part of medicine would still be existent in archives (ready for him who could question, read and understand) and in the memory stores of living men.

On the other hand there is that which may be termed the *Practice* of Medicine. This is non-existent except in the deeds of practitioners; that is, the acts themselves are temporally conditioned and it is only some of their more stable effects which persist. Commonly by medical practice is

meant only the following of his profession by the physician. I am employing the expression in a double meaning to connote also *all* medical *activity*. Medical practice conceived in the latter sense consists of three great divisions: *Medical Research*, the activity devoted to the acquirement of new knowledge and method; *Medical Education*, the process of transmitting medical knowledge and method; and *Medical Practice* in the narrower sense, the field of endeavor having to do with the enterprise of diagnosticians, therapists, hygienists, public health officers, etc. The physician and the public health officer act with the purpose of preventing, curing, and alleviating disease, and of furnishing data and medical judgments in social situations. The one has as the object of his practice individual man as a potential or actual subject of disease; the other collective man. The medical educator acts with the purpose of transferal of knowledge and technique, and has as the object of his practice the medical student. The research worker acts with the purpose of arriving at new insights, of making discoveries, of adding to the sum total of medical knowledge, and the objects of his practice are various,—man, in clinical research; other animals, animate and inanimate objects in laboratory research; social groups in medical social research. Since action of any sort must have its object, there must be included in the makeup of medicine not only the existent body of knowledge and procedure, not only the various practitioners of medicine but also the butts of medical activity, especially the *patient* and the *social body*, and only to less extent the *external milieu* and the *specimen*. Conditioned by the knowledge of the time, the physician cares for his patient, the public health officer orders the social body, and the laboratorian studies his specimen.

But just what is medicine? Thus far I have said that I was conceiving it in broad sense; that it consists of a body of knowledge—a great legacy from the past—and of action of three main types; and of certain objects of these actions. But what has been the motive force to the building up of this lore; what has been the spur to this execution?

Motive Forces to Medicine: Disease, Old Age, Death

Disease, old age, death. This is the triad that has ever faced humanity.

You know the beautiful legend of the three symbolic encounters which determined the vocation of Buddha. Son of a king, the young prince was brought up and guarded in the luxurious leisure of the palace, by his father, who frightened his meditative turn of spirit in keeping from him all sorrowful spectacles. Promenading in the park, he saw for the first time an old man, decrepit, toothless, bent over on his staff; and his teacher was obliged to enlighten him on the nature of

old age and on the fact that every human life journeys thither. A few days later, it was one ill whom he met, and he became acquainted with disease and with the truth that no one escapes it. And finally, a third time he passed on the road a funeral cortege; he knew then that death is the term of all life—old age, disease, death. All three are the province of medicine. By it, in the last analysis, they are explained, and in great part their rigours lessened. But old age we scarcely think of. And as to the idea of death, humanity is armed on its part with a prodigious insouciance, which is a safeguard, a reaction of the instinct of conservation, without which every civilization would have been impossible. . . . On the other hand disease always imposes itself on our attention and on that of our close relatives. From infancy, man becomes acquainted with it. Between him and this natural phenomenon, disease, the physician plays the rôle of an interpreter, of an initiator, or more simply, of an educator.

I have taken this passage from E. Rist.[2] More than anyone else he seems to have occupied himself with the nature of medicine. His views are so just and illuminating that they warrant free exposition. He divides medicine into three great groups, *curative medicine, preventive medicine,* and *social medicine.* We shall consider these in turn.

Medicine as "Ars Medendi"

What is medicine? From time immemorial has come the answer, "the art of healing," *ars medendi.* This conception is so deeply rooted that it is incorporated in the very name for medicine in certain languages. To the German this profession is *die Heilkunst, die Heilkunde.* The noun medicine comes from the Latin infinitive *medere,* to cure. I hope to show that this age-old definition, though terse, is inadequate. It is not only incomplete, but hopelessly fails to give any idea of the complexity and universality which make of medicine today a sort of veritable encyclopedia of knowledge.

Need preceded knowledge. From the time that prehistoric man broke his bones when pinioned by falling trees; received wounds in combat or from the claws of wild animals; or sickened and died, the need of help was evident. Thus, of necessitation, there developed methods for meeting these catastrophies, methods based on empiricism, it is true, but nevertheless modes of action grouped into a discipline which rightly has been and can be called, the art of healing. And this is all that medicine was at its birth; confounded with primitive religion and magical practices, it emerged into its own only with the Greeks.

But if one thing be clear, it is that medicine is not now that which it

[2] Rist, E., Qu'est ce que la médecine? suivi de six autres essais. Paris: Masson et Cie., 1929, p. 36.

was in the past, and not that which it will be in the future. It is not static, but evolving; and transformation is occurring under our very eyes. The "art of healing" as a definition might have applied sufficiently up to one hundred years ago. But if a critical attitude be assumed it can be questioned whether the medicine of that day really had much power in the healing of disease in the sense of active definitive interference; rather, the accomplishment should be considered one of mere guidance into channels where cure was secured by nature. Surgery was still external medicine; its control over disease phenomena was not striking. And how many drugs really cured?

We cannot be so vain, says Rist, as to believe that the history of the achievements of medicine shows any drastic control and intervention in the course of fully developed disease. The diseases considered truly curable in the sense of direct arresting action can almost be counted on the fingers: Quinine is of inestimable value in the control of malaria, and sodium salicylate in acute rheumatic fever; iron restores those with chlorotic anemia, thyroid extract those with myxoedema, and lemon juice those with scurvy; bismuth and arsphenamine combat syphilis, and antitoxin diphtheria. But these constitute merely a "pocket pharmacy."

These statements made in 1929 have to be modified somewhat today with the introduction of the sulfonamides and penicillin.

Most medicaments, he explains, play a little different rôle from what the uncritical consider as curative. Insulin controls the level of blood sugar in diabetes, liver extract rebuilds the blood in pernicious anemia; but these substances cannot recall the unfortunate from his disease status. Digitalis withholds from death the dropsical sufferer from heart disease, and permits him a prolongation of life, precarious but none the less sweet. Radium suppresses many a rodent ulcer and uterine cervical carcinoma, but there are many recurrences. We owe untold alleviation of pain and suffering to analgesics and hypnotics; and what would we do without anaesthetics? But none of these cure disease.

When we come to the *modern* surgical treatment of disease, he points out, the picture is a little more bright. If a patient is relieved of a strangulated hernia which would otherwise prove fatal, and the hernial opening is repaired and remains so, there is little more that can be asked of any curative procedure. Conditions which were only yesterday incurable are today controlled by well considered and prompt surgical intervention; we have but to mention among others appendicitis, mastoiditis, perforated ulcer of the stomach, uterine fibroids and ovarian cysts. But even as the delayed administration of antitoxin in diphtheria is often ineffectual, so

operation does not always rescue the neglected patient. It would not be necessary to operate for purulent pleurisy, he abjures, if one were able from the start to cure the pneumonia which gave it birth; nor for peptic ulcer, if one knew how to make it cicatrize. Surgery has not the ear marks of an ideal curative measure—it is destructive, and often heals only by sacrifice of organs and tissues. It is rightly called a therapeutic of fire.

Medicine as Prevention and Prophylaxis

Fortunately medicine, which through so many centuries was but the art of healing, has gradually been transformed. It has developed into the *art of prevention.*

Before the time of Jenner, continues Rist, preventive medicine scarcely can be said to have existed; but to what proportions it has grown! The physician can no more cure smallpox today than in the time before Jenner, and there is no better illustration than the story of vaccination to show how prevention may be so effective and cure so impotent. So much has this method evolved that today it bids fair to take front rank in the fight against disease, and legitimately so. It can be said without paradox at the present time that more diseases can be prevented than can be cured. Typhoid, typhus, malaria, yellow fever, cholera, pest, are largely things of the past in western nations; and diphtheria should soon join them.

These great conquests, he emphasizes, have not been secured by the efforts of individuals as have those in the case of curative medicine, except in isolated instances such as the preventive treatment of rabies. Rather these gains have been made possible by the application of knowledge through the instrumentality of the state, exercised upon the collective population as a unit.

Preventive medicine, however, has not been and is not all powerful. It has problems to solve as outstanding as many of those in curative medicine. The public health officers were as impotent in the face of the great influenza epidemic as were the individual practitioners.

Leaving the thought of Rist for a moment, consider the rôle of the obstetrician. Is he a healer of disease? He plays the part of the curative physician only in the pathologic case. Women can have children without the aid of doctors. The accoucheur merely assists at a physiologic process. When he uses sterile technique in his delivery; secures emptying of the bladder and rectum; ascertains that the foetal position is normal; protects the perineum; assures that breathing is well started, and the cord properly tied; aids in the expulsion of the placenta and in the contraction of the uterus; and finally directs that silver nitrate be placed in the infant's eyes:

what type of medicine is he practicing? *Prophylactic medicine*. And it should not be forgotten that it is to the good graces of prophylactic medicine also that the surgeon owes much of his power in the cure of disease. Without asepsis the invading of the body cavities is perilous; and asepsis is prophylaxis.

To conserve health, to cure disease—has medicine no other functions? Does curative medicine and preventive medicine constitute the whole? No, for society makes other demands. There is also *social medicine*.

Medicine as Social Service

Consider the medical service of a large insurance company, says Rist. What here is demanded of the physician? Is it that he cure or prevent disease? Not in the least. He is asked for a scientific determination of the physical status of the applicant and a judging as to his probability of survival. When a nation goes to war and assembles an army it is the physician who presides at the recruitment. Soldiers must be selected having an aptitude for military service. Here again something is asked of the physician which has little to do with the treatment and prevention of disease. He is expected not only to eliminate the sick and the infirm, but also to evaluate to what degree certain diseases are curable in the near future, or compatible with military service.

When we turn to the law we find the rôle of the physician more generally recognized; and the legal tasks asked of medicine seem more closely associated with the regular duties of the physician. This is formally acknowledged in the setting off of a specialty in medicine, medical jurisprudence. Many questions are asked of the practitioner: What was the cause of death? Was this child stillborn or the victim of infanticide? Were the convulsions those of strychnine poisoning or of organic disease? Is the condition the result of injury? Is this criminal feeble-minded?

These and numerous other questions have little to do with the cure, alleviation, or prevention of disease. In answering them it is a social duty that the physician discharges. And why does society ask this of him? Because from the knowledge acquired by his studies and his experience he alone knows enough of man, his structure and functions, his physical and psychic status, in health as well as disease, to give reliable opinion.

The Rôle of the Physician

If the physician cannot be considered a true curer of disease except in certain instances, does this mean that his rôle in the management of the sick individual is of little value, his long course of study of no avail, and

his pretense a mockery? Far from it. There is scarcely a member of the body social of more value to his fellows. But how does he function in the conduct of disease? Hippocrates likened him to a *pilot*. This thought is excellently voiced by Rist, whom a second time I directly quote: [3]

> What can the physician do, for example, in the course of that long and dangerous adventure known as typhoid fever? We do not know how to cure it. When it does not kill, it is to a kind nature that we must render thanks. Our rôle appears to me very analogous to that of a captain of a ship, who is making a passage during a tempest upon waters strewn with reefs or haunted by submarines. He does not have the power to lay the tempest, or to make the rocks submerge. He is not sure himself that he will conduct the ship to port. He is aware of menacing dangers that the passengers are ignorant of. Yet the passengers are sustained in their anxiety solely by the confidence which the captain inspires in them. He alone, they know, can avoid the rocks, fother the leaks, follow the most sure route. And if one arrives at port, he knows full well that the captain has his great part of merit, together with good fortune or Providence. The physician likewise cannot calm the tempest. But he knows the probable duration of the disease, for he is familiar with the laws which govern it. He knows at what phase the most dangerous complications are to be feared and watches for their possible appearance; he holds himself in readiness to intervene, for example, by performing a laparotomy at the moment when an intestinal perforation is imminent, or by sustaining the heart, if it weaken, by appropriate medicaments. He knows how to avoid all inopportune therapy, and to conserve the bodily strength by judicious alimentation. He recognizes and points out the favorable symptoms as they arise, sees from afar grave signs, reassures, encourages, consoles, constantly keeps up by the confidence which he inspires and by the radiation of his knowledge that endurance and that patience which are so necessary to the family and friends of the patient and a requisite to well being. One has before him a long and perilous voyage of three or four weeks, perhaps more. The physician is the pilot. And if there be a shipwreck, he will have accomplished all that was in his power.

The treatment of disease, the preservation of health, the guidance of man in his social relations; these things are of the very essence of medicine. We can no longer be content with the definition *ars medendi*.

Need of Nosology

Disease and death: these call not only for combative action, but also for explanation. They represent the deepest concerns of life. How gripping and urgent they must have appeared to primitive man, how cryingly they stood out for explanation is compellingly described in a passage from the great medical historian, Karl Sudhoff: [4]

[3] Rist, *loc. cit.*, p. 35.

[4] Sudhoff, K., Disease demonology and healing customs of the Teutons, pp. 171-180 in Essays in the History of Medicine. Pp. 397. New York: Medical Life Press, 1926.

Disease and death have always made the deepest impression on the soul of early man. Whether life came to a close at the end of a mysteriously long drawn out illness, or whether the joyous human was annihilated with terrifying suddenness, in either case there arose, in opposition to the horror, the urgent question: "What is the nature and what the origin of this dreadful thing?" Death from haemorrhage and death from strangulation were familiar from the daily routine of hunting and the struggle with different enemies. But what opened suddenly the sluices of the blood-vessels causing one's kinsfolk to bleed to death? What invisible force obstructed the air passages from within, causing the growing infant to clutch convulsively at his throat and finally die of suffocation? In the smoky clay hut, one has often felt some pushing or pulling thing that sat on one's chest or neck when one awoke screaming with fear and bathed in perspiration,—an awful incubus that almost choked one to death in the night. In the same way, a dreadful something attacks us nightly, not merely hovering above us at intervals, like the nocturnal or noon-day nightmare, but firmly fastened in our bodies. And yet the nightmare is an impressive personal experience. Very similar was the springtime experience when storms raged outside, when chills alternating with fevers attacked us, shook us and worried us with restless dream-chasings and long after tortured us with miseries not realized by our housemates: uncanny invisible things, yet very perceptible, almost tangible things surround us, lie in wait for us, attack us like crafty enemies,—disease spirits, demons of disease, which from the intuitive feeling for causality, which influences our fantasy, are embodied in varied shapes, depending on whatever has been seen or felt at the time. Mysterious above all else, was an invisible something, alive and effective in ourselves and our intimates, as well as in our enemies, but which deserted the body at death, and left it forever—the soul.

It is not difficult to realize from this how demonology became the first interpretation of disease; and is it any more difficult to understand man's first attempt at a naturalistic explanation, the doctrine of the humors?

Suppose that you knew nothing of the internal make-up of man except crude notions secured from the bodies of animals; that you were ignorant of how organs functioned; that you had never seen the gross changes in the tissues revealed at necropsy; and that your conceptions were entirely clinical based on believing what you saw. At the bedside disease was made known to you chiefly by changes in the bodily secretions and excretions. You saw the patient sweat and vomit; the bowel discharges become frequent, thin and watery; the urine scant, high colored and filled with sediment; the sputum abundant, blood tinged, and teeming with corruption. You found the breath hot, the skin dry and burning. You saw superficial abscesses rupture and run, empyemata break. What would you have thought? You would have developed a humoral pathology.

It stands out clearly, therefore, that alongside the need of giving aid to the sick and maimed, i. e., the necessity of developing a therapeutics, there

soon arose the need for some sort of explanation of the phenomena of disease. Man could not rest satisfied with action alone; he must have knowledge and some sort of theory on which to base his action. Thus medicine, which in its first stage was synonymous with therapeutics, soon inevitably expanded to take to itself a theory of the phenomena of disease; after a therapeutics it developed a nosology on which this therapeutics became based. With the observation and study of disease and increasing medical knowledge, with the development of a theory of disease, there came the possibility of the separation and recognition of disease processes and a basis for the prediction of the outcome of disease; that is, there arose in the natural evolution of medicine the development of diagnosis and prognosis, of which the latter from the exigencies of the case received the greater attention.

Earlier I spoke of the triad: disease, old age, and death. I have just shown how disease and death led not only to the development of a therapeutic medicine, but also to a nosology. Does then the third of these, namely old age, have no place in medicine?

The Prolongation of Life

It is true that little consideration is given old age in theoretic discussions of the concept of what constitutes medicine. And yet that acute thinker, Bacon, recognized in his day that the function of medicine consists not only of the preservation of health and the cure of disease, but also of the prolongation of life.[5]

> For this last part, physicians seem to think it no capital part of medicine, but confound it with the other two; as supposing, that if diseases be prevented, or cured after invasion, long life must follow, of course. But, then, they do not consider, that both preservation and cure regard only diseases, and such prolongation of life as is intercepted by them: whence the means of spinning out the full thread of life, or preventing, for a season, that kind of death which gradually steals upon the body by simple resolution, and the wasting of age, is a subject that no physician has treated suitably to its merit. Let none imagine we are here repealing the decrees of fate and Providence, by establishing a new office of medicine; for, doubtless, Providence alike dispenses all kinds of deaths, whether they proceed from violence, diseases, or the course and period of age; yet without excluding the use of remedies and preventions, for art and industry do not here overrule, but administer to nature and fate.

It is evident that the prolongation of life in the sense of forging controls over the processes leading to senility must be a late function of medicine.

[5] Bacon, Francis, Advancement of Learning, Fourth Book, Chapter II. 1605.

It is almost inconceivable that we shall ever gain control over the normal speed of aging until we have solved certain fundamental problems of life. How shall we learn to stave off for a season processes of decay if we do not learn more about the processes of growth and maturation preceding them? Yet if a method ever be found of restoring youth to body tissues and to mind who shall administer this treatment if it not be the practitioner of medicine? We cannot doubt, however, that this method will be put into his hands from the field of medical research by the medical scientist searching into the laws of life.

The Evolution of Medicine

It was inevitable in the evolution of medicine that man should find it not only advantageous, but even necessary, sooner or later to go beyond his crude nosology based on clinical observation. Gradually it became evident that to understand the processes of disease, it was first necessary to have knowledge of normal man himself. In the acquirement of this knowledge study of form naturally preceded the study of function; the study of body, that of mind. Thus it came about that with Vesalius and Harvey the sciences of anatomy and physiology arose as firm bases for the structure of medicine, and the day is to be looked forward to when the equally important science of psychology will take its proper place in the substructure of medicine. The study of normal man led in its turn to the formation of a new nosology; the study of abnormal processes in man himself opened the study of the environmental conditions initiating these processes, thus giving rise to a new therapeutics; the elucidation of the harmful environmental factors, such as the pathogenic bacteria, led to greater control in the prevention of disease; and finally all this knowledge stood at the command of a more enlightened public for application to the problems of a society ever increasing in complexity.

Thus it is seen that a definition of medicine given at one stage in history will not be accurate or apropos in a later period. Medicine may be represented as an ever rising and expanding spiral starting at a basic point going up in ever widening curves embracing at each new height increasing territory with the limits of its domain not yet in sight. At the starting point is man himself; man sick, man afraid before death. In response to this need comes he who tenders help, priest, medicine man, physician. A theory of disease develops, the demonistic nosology of the Shaman becoming naturalistic with the advent of the Greek physician. There arises the study of man himself, his structure and his function, both in health and in

disease, and with this study a new kind of worker in the medical field, the medical scientist. He is followed in turn by the public health officer, and the subject of study and object of effort is enlarged from individual man himself, diseased or subject to disease, to man as a part of the social body. The physician ever has been jealous in guarding the domain of medicine from intruders, and in asserting his sole right to sovereignty. It is doubtless this sentiment to some extent which still leads some medical theorists to consider medicine in its true sense as limited entirely to the field of activities which center about the physician, the Doctor of Medicine. On the one hand the physician despises those cultists and quacks with little or no scientific background; on the other, too often he denies admittance to the medical domain to those very scientists the capitalizing of whose ideas and help has raised him from crude empiricism to his sharp distinction from these same cultists. Yet taking the broad view all "practitioners" in the medical field whether they be physicians, scientists, teachers, philosophers, hygienists, or quacks, have their *raison d'être* and their justification in man as subject to disease, old age, and death. They all represent phenomena in the great field of medicine and as such must receive due consideration.

Man and Medicine

The central rôle played by man himself in medicine as one subject to and suffering from disease and as an actual or potential diseased member of society; and the necessity of having persons to prosecute the study of man in order to minister to his needs: these are matters of prime importance in medicine. Let me quote still again from E. Rist:[6]

> For the adventure of medicine is that of all the other sciences. At the beginning it was an occupation, created by necessity, whose end was purely utilitarian. But the human spirit is so constituted that it does not permit itself to be chained long to a servile task; it does not hesitate to see further than the practical application of the little that it knows; it wishes to know more, for the mere joy of knowing; it wishes to comprehend and to go down to the very bottom of things. Geometry was at first no more than a crude and rudimentary measuring of land; and the first observers of the movements of the stars thought only of predicting the seasons and of orienting themselves in their primitive navigations. Are we going to return the geometers to the surveying of land and imperiously call back the sublime astronomy to its point of departure? We do not even dream of it. Moreover, the more a science is followed with disinterestedness, the more fecund it is in useful applications which give rise without fail to new problems for investigators who are themselves disinterested. Between pure science and applied science there is a

[6] Rist, *loc. cit.*, p. 29.

constant play of action and reaction, and it is from this exchange that there results what we call scientific progress. Thus medicine has never been better armed for ameliorating the fate of humanity, by hygiene, by the prevention, the cure, and the alleviation of disease, than since it has subordinated these particular ends, whose nobility and beauty cannot indeed be questioned, to an end more general which is the ***knowledge of man.***

It may be objected that the science of man taken alone does not represent the sole object of medical study and practice. Animals are used in experimental procedure for the elucidation of the problems of man. Man's environment is considered as well as he. There is a whole branch of medicine, veterinary medicine, which does not have man as the object of its study and practice, but the domestic animals. Yet the use of animals in experimental medicine is a necessary substitution for man as an experimental being himself, the results obtained being applied to man by analogy. Man still remains the object of interest and the subject of study, the exigencies of life dictating that certain problems cannot be approached directly through man himself. I am using the term " man " in broad meaning as inclusive of his environment inanimate and animate, physical and social, so far as these have bearing in the medical sense. Thus such a study as medical bacteriology comes under the science of man in this interpretation, for without bacterial invasion in man and man's reaction to it, bacteria would have no place in medical science.

Comparative Medicine

The subject of veterinary medicine deserves consideration. Veterinary has reference to the Latin *veterina*, a beast of burden. The fact that it applies only to domestic animals or such wild animals as are in captivity in zoological gardens points to its predominantly economic rather than humanitarian function. Veterinary medicine is practised chiefly in the interests of man, not in those of the sick animal. Veterinary medicine represents an offshoot from human medicine, taking the methods and knowledge of the latter gained through the centuries and applying them to animals other than man. In turn this offspring, besides making discoveries and investigations of its own and in its own right, has made contributions to its parent, human medicine. The recognition of this and of the right of this similar field of endeavor to be considered a part of medicine in its broadest sense led quite properly to the establishment by the Royal Society of Medicine in 1923 of a Section of Comparative Medicine. The brief

presidential address of Sir Clifford Allbutt [7] on "The Integration of Medicine" in inaugurating this section has one paragraph which is quite apropos in showing the artificiality of the barriers separating various fields in medicine.

> The barriers of convention, which ought to be slender and occasional, are of all the most inveterate and impregnable. Of such have been the barriers devised by medieval perversities which, to its grievous injury, have split up medicine into fractions. As physic was divorced from surgery and mind from body, so the diseases of animals and plants were separated from those of mankind. The folly of the division of the medicine of the hand from the medicine of the bottle has now become so glaring that our next festival may be on the blowing up of this rampart; indeed the gynecologists have exploded their end of it already. But it is a big business to transform a medieval castle with its baileys, barbicans and keep, into a modern domain.

There is a field in modern botany which probably approaches veterinary medicine in its purposes as much or more than veterinary medicine approaches human medicine, though in practice it has little connection with either. Plants have diseases as well as animals. One has only to consult treatises in phytopathology to realize the similarity of disease processes in plants and in animals. Like veterinary medicine this field has its economic aspects, its usefulness to man. The tree-surgeon is a practitioner in this domain; but it is the application of the knowledge of phytopathology to agriculture and to fruit culture that is most important. The prevention and the treatment of the diseases of plants and trees under domestication, of plants useful to man for many purposes, chiefly as food for himself and animals, is as important or more important than the control of disease in animals. The rôle of domestic animals in man's life as a source of work has decreased markedly; such animals' chief present value, like that of grains, fruit, etc., is as a source of food. Our concern is, of course, human medicine. These fields are offshoots, ancillary branches. Whatever enlightenment they have to offer in human medicine is welcome; but the study of disease processes which are the bane of all life, plant and animal alike, started in the study of morbid processes in man, himself. I shall combine the domains of veterinary medicine and phytopathology under the comprehensive term, *Comparative Medicine*. Their practice is of little concern to human medicine as I am here defining it, and had best not be considered a part of it. The *Theory of Disease*, however, knows no such bounds, and applies not to man alone but to all life processes; thus it reaches beyond the confines of medicine proper.

[7] Allbutt, Sir Clifford, The integration of medicine, *Proc. Roy. Soc. Med., Sec. Com. Med.* 17: 1-3, Oct. 24, 1923.

Medical and Paramedical Institutions and Occupations

The physician quite naturally is thought of as the representative of medicine. Unquestionably he is the chief representative. It is the physician and the surgeon who carry over into practical life the application to diseased individuals of the precepts and findings of medical science; it is they who constitute to great extent the medical profession. They are predominantly the alleviators and curers of disease. In the early days when medicine was merely an art and had as its sole goal the cure of illness, the physician represented the personification of all there was in medicine. There have arisen now, however, other men in medicine: the hygienist, the public health officer, the pathologist to say nothing of numerous other workers in the fundamental medical sciences. And these do not represent all who have close connection with medicine. What shall be said of nurses and pharmacists, of technicians, food inspectors, sanitary engineers? And what shall be said of institutions giving medical care and furnishing medical supplies—of hospitals and sanatoria, of instrument houses and pharmaceutical manufacturing concerns?

These individuals and these institutions are in the service of medicine. Along with the physician they contribute to medical care. There was a time when many a physician was his own pharmacist; there was a time when pharmacy was a much more self respecting and exacting profession than it is today. Much of the function of the druggist has been taken over by the manufacturer. The pharmacist has become more a dispenser and less a compounder of medicines. The functions of the nurse have steadily increased. Modern hospital practice without her is inconceivable. Institutions for the receiving, housing, and care of the sick stretch back over the centuries. With the advance of civilization their existence has become ever more necessary. The conditions of modern manufacturing and of mass production dictate the manner of producing medical supplies and pharmaceuticals. Many great pharmaceutical firms now, besides contributing necessities for use in medical treatment, have built institutes and are engaging in medical research, thus aiding materially in the quest of things out of the unknown.

All these services should receive due recognition. I shall speak of them as *medical* and *paramedical* institutions and occupations. Their consideration belongs chiefly in the field of social medicine, especially in medical economics. Some of these institutions can be considered integral parts of medicine: the research institute is the representative of the field of Medical Research; the school of that of Medical Education; the hospital of

that of Medical Practice. They can be labelled truly *medical*. Others are on the borderline and can be rightly termed *paramedical*. Beyond this a boundary must be drawn somewhere. Occupations and businesses which have some contact with medicine can be cited almost indefinitely, but they will get even farther and farther from the fundamental core of the healing art. This merely goes to show the interdependence and necessary mutual support of various fields of endeavor in the complexity of modern life.

The Lay Professor in Medicine

Most of the present day diversity of opinion in the United States, outside the current great interest in economic and social problems, has centered on questions of medical education, and specifically on the rôle of the so-called "lay professor" in medicine. I make bold to maintain that one need not hold the M. D. degree to be a devotee of medicine and to belong in the medical fraternity. If this academic title were necessary for inclusion in the medical fold many great names that grace the pages of modern medical history would be deleted, headed doubtless by that of the chemist Pasteur. The setting of medical practitioner against medical scientist, as is so often done, is unfortunate. This matter has been presented admirably by Stockard.[8]

> Two kinds of minds are valuable or really indispensable to medicine: one the discoverer, and it matters not who or where he may be; the other, the one who comprehends the significance of things. The latter is often rarer than the former; many knew what the milkmaids said about small pox, but only Jenner appreciated its value; and in so doing he became one of the landmarks in the progress of civilization. A subject becomes scientific when it has advanced to a stage at which its study depends on exact experiment. Physics and chemistry long ago arrived at this point, and biology has been developing on such a basis for more than thirty years. These are the fundamental sciences on which medicine must progress. They have already supplied a splendid foundation. Much of it was built by the professional physicist, chemist and biologist; the practitioner of medicine in many cases has comprehended the worth of the discovery and devised the technic by which it was applied to the treatment of disease. Has either party to the contract actually suffered from the shortcomings of the other? Should the two be divorced, or are either to be considered "lay" by the other? Only one answer is possible: Does the trained engineer teach the fundamentals of physics and chemistry to the engineering student or does the physicist and chemist? The latter; and with elementary scientific knowledge the young engineer builds with a better understanding of forces and materials.

[8] Stockard, C. R., The laboratory professor and the medical sciences in the United States, *J. A. M. A.* 74: 229-235, Jan. 24, 1920.

Public Health

If many Bachelors and Masters of Science, and many Doctors of Philosophy, are to be admitted to the medical fraternity are not likewise to be welcomed those holding the degree of Doctor of Public Health? This field has been defined by Winslow thus:[9]

> Public health is the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease and the development of the social machinery which will insure to every individual in the community a standard of living adequate for the maintenance of health.

This definition represents a broad concept of the field of public health just as I have been developing a definition of medicine in general in a wide sense. For prosecution of the purposes of public health other persons than physicians alone are obviously required. True, in its development the physician was the earliest health officer to be recognized. Often he was untrained for this work. Later associated with him came the bacteriologist, and the epidemiologist. Besides these are the public health nurse, the sanitary engineer, the statistician, and the social worker. These latter are necessary for the carrying out of the program of public health, just as the nurse, the pharmacist, the technician, are now necessary adjuncts in the furnishing of medical service and care. They are on the border of medicine proper, and need not be included in it. But the concept of preventive medicine and the field of knowledge appertaining to it, and bacteriologist and epidemiologist, belong to medicine. The public health physician will of course differ in his training from the ordinary physician practising curative medicine. He properly should be looked upon as a specialist from the general medical field especially trained for his specific duties. He will envisage medical problems from a different standpoint than his confrère. The latter sees disease and hygiene from the angle of the individual sufferer, the former from the viewpoint of society.

This difference in conception is strikingly brought out by Desfosses in an editorial in the *Presse médicale* under the caption, "Demagoras, hygieniste." I quote the report of this as given in the *Journal of the American Medical Association*.[10]

[9] Winslow, C. E. A., The untilled fields of public health, *Science* 51: 23, Jan. 9, 1920.
[10] Desfosses, cited in *J. A. M. A.* 74: 53, 1920.

He compares Iatros and Demagoras. Iatros, the physician, who has grown old helping the sick; his glory, the gratitude of a few whom he has saved from the tomb. Every day, every hour, he teaches practical hygiene. He is not afraid to tell Demos that many of his ills come from his bad habits; that physiologic poverty comes often from vices; that the best way to keep well is to be clean physically and morally; he tells the young men that the surest way to avoid venereal diseases is to keep from exposing oneself to contagion; he hints to the workman that cirrhosis and dropsy and even tuberculosis are picked up in the barroom (*se prennent sur le zinc*,) and that accidents are often the consequence of imprudence or drunkenness. He teaches that progress in hygiene is possible only by individual effort. General measures are effectual only with the active collaboration of the individual. Every man hews out his own destiny. He preaches constantly moderation in eating and in pleasures, and regularity in habits. But Demagoras with his new diploma as hygienist, obtained after a few months in a bacteriologic laboratory and attending a few lectures on hygiene, declares that the sick are the victims of Society; that diseases are the result of the bad organization of public hygiene. If people are tuberculous, that is because the declaration of tuberculosis has not been made compulsory: how can a disease be combated if its exact prevalence is not known? Far from exhorting Demos to lead a more hygienic life, his axiom is that Society is to blame for everything. If the laboring man drinks liquor, it is because he wants to forget; if he is lazy, it is because he does not get enough food. The young man should be able to obey without restraint the desires which Nature has implanted in him. It is for the antivenereal dispensary to render Venus safe and dry Cupid's tears. To establish once for all and absolutely school hygiene, urban hygiene, industrial hygiene, all that is necessary is to have numerous inspectors, well paid. Damagoras speaks with superb disdain of clinicians. He, himself, represents Science. Medicine for the physicians; hygiene for the hygienists. Demos can without fear seek his pleasures; Demagoras will assure him the scientific organization of hygiene. The people thus hear two voices preaching to them: To keep well, develop your individual energy, do not count on anyone but yourself, says the physician. To keep well, develop the system of public functionaries, count on me, clamors Demagoras. We may all imagine how puzzling these two tendencies must prove to laymen accustomed to guide themselves by authority, and who under the circumstances cannot determine by themselves which is the correct advice. It would seem however, that here as elsewhere, the middle of the road would be the safest, and that both individual hygiene and public sanitation must be observed if Society is to secure a maximum of protection against disease.

Desfosses is here perhaps a little hard on Demagoras. A true medical synthesis will not attempt to exaggerate this antithesis, but will seek to combine these viewpoints in a unified whole, just as it attempts to bring medical scientist and physician into harmonious rapprochement.

Social Medicine

"*Conserver la santé et guérir les maladies*, such is the problem medicine has posed since its origin and whose scientific solution it still pursues"—

thus began Claude Bernard in his *Introduction à l'étude de la Médecine expérimentale*; and thus still ends many a definition of the purposes and ends of medicine. But, as I have shown, medicine also has its social purposes; alongside curative and preventive medicine, there is Social Medicine. Social Medicine has been described by Dunham [11] thus: "Its purpose is to further the application of scientific methods of organization to man's social habits in order to determine their usual biological characteristics, to discover the sources, causes, and effects of instability and to establish a sympathetic equilibrium between the organisms innate and acquired tendencies." It helps "to harmonize human behaviour and to organize conduct."

Definite departments of Social Medicine include various agencies dealing with the family as a neighborhood unit, with the interests of infancy, childhood and youth; with educational and industrial hygiene in its relation to conduct; with the administration of justice through courts of law; with primitive and corrective institutions and with other social phenomena. General and Preventive Medicine are more strictly analytical fields from whose data Social Medicine seeks to synthesize or construct an adequate social adjustment.

Social medicine so viewed deals chiefly with the "practice" of social medicine, a sense in which we have seen Rist also using it. I employ the term *Social Medicine*, however, in a still broader sense as embodying sets of principles as well as practice and as having reference to the relationship of man to man, physician to patient, physician to physician, physician to society. I look upon medical jurisprudence, medical education, medical ethics, medical economics as among the greatest fields in social medicine. Dunham has written his treatise on Social Medicine much as the usual works in medicine are written, that is as a practical guide in the approach to and solution of every-day problems. I am approaching this field, however, from the theoretic viewpoint. Preventive Medicine is a social function, as is also the practise of Curative Medicine. I am distinguishing Social Medicine *per se* from these fields, in conformity with the different purposes they have in view. Social medicine does not directly apply itself to controlling disease. It has to do with the arrangements made through medical schools, medical journals, medical societies for the teaching of medicine; with the rules and canons of conduct in medical relationships; with the organization of medical practice and research; with the economic problems of medical life; with the application of the principles of general and preventive medicine to certain problems of conduct and behaviour in

[11] Dunham, F. L., *An Approach to Social Medicine*. Baltimore: Williams and Wilkins Co., 1925.

the social body; with the determination of health and disease status for the prosecution of social functions. There is a body of knowledge in medical jurisprudence, a technique for the dispensing of medical knowledge, a theory of ethical conduct, a philosophy of economic relationship; all these matters belong to medicine and must receive their proper attention.

The Improvement of Man as a Biological Organism

In medical science lies the only practicable control of human evolution and of biological progress. Medical science must cease to regard its function as primarily curative and preventive. It must rid itself of the obsession that its chief responsibility is to the individual rather than to society. It must allocate to itself the function of discovering how the human animal may be improved as a biological organism. The future of mankind does not depend upon political or economic theory, nor, yet upon measures of social amelioration but upon the production of better minds in sounder bodies.

Thus writes the anthropologist, Hooten.[12]

This is the vision of the eugenists. The problem is very complex and cannot be other than broached here. The eugenic movement as such is subject to much justifiable criticism. The improvement of human stock has two aspects, the weeding out of undesirables and the breeding of an improved human animal. Everyone is pretty well agreed that we should, if possible, be free from imbeciles and morons, psychopaths and the ever increasing numbers of biological and mental inferiors. The efficacy of the suggested remedies, contraception and sterilization is doubtful, but that these techniques rightly belong in the field of social medicine scarcely can be questioned. Curative and preventive medicine, instead of leading in the direction of human biological improvement, tend, in fact, to give aid to the processes of deterioration. In their humanitarianism these medical fields exert a distinct dysgenic effect in that they nullify to great extent the play of natural selection in eliminating through disease processes those constitutionally inferior. The first query confronting those hoping to make positive effort in the directing of human evolution toward definite goals is: "What type of man is desirable?" This is a difficult question and medicine can be held accountable only for an answer in the biological sense; the elucidation of the broader problem of individual human value belongs to sociology. The means for such improvement are not at present evident. Doubtless, however, medicine has the responsibility of at least developing a program toward this end.

[12] Hooten, E. A., Man as director of human evolution, pp. 248-270 in *Apes, Men and Morons*. New York: G. P. Putnam's Sons, 1937.

Clinical and Laboratory Medicine

I have considered medicine from various viewpoints and made different divisions based on these viewpoints. I cannot, however, achieve completeness without discussing a further type of division. This is the one between *Clinical* and *Laboratory Medicine*. This dichotomy is most keenly felt in the realm of diagnosis where it has led to much acrimonious discussion, but it applies also to research and teaching. As in the case of the definition of medicine itself, it is astonishing that so little attention has been given in all this debate to an attempt at clear delineation of just what is meant by clinical and by laboratory medicine.

The term clinical comes from the Greek κλινικός referring to a bed, and hence applies to bed-side medicine. Laboratory, on the other hand, comes from the Latin *laboratorium* from *labor*, work; and a laboratory refers to a building equipped for conducting scientific experiments, analyses, and similar work. On superficial examination the distinction of these two fields in medicine seems clear enough even from the etymological derivation of these terms; but as is true of all distinctions, when analysis of these concepts is carried far enough difficulties are soon met and a borderline area common to both is found. I cannot enter into such analysis here, but such study will lead to the conclusion that *clinical medicine* is that portion of medicine which has to do with the *direct* study of the *patient* as a *living functioning intact whole*, whereas *laboratory medicine* is that portion of medicine which approaches the problems of life and disease in man by *indirect* means, that is through the study of *specimens* and *other objects*, animate and inanimate as *representative* of conditions and processes existing in man. All study on animals as subjects of experiment,—in short, the whole field of experimental medicine as it is known today; the study of man after death, either by anatomist or pathologist; the study of secreta, excreta, and specimens gaseous, liquid, and solid taken from man; the study of bacteria and parasites, etc.: these pertain to the laboratory. Clinical medicine deals with *persons*, laboratory medicine with experimental animals and *things*.

The Subdivisions of Medicine

It is curative or so-called general medicine which plays at present the predominant part in civilized life. In spite of the bewildering number of specialities into which it has been divided, there are chiefly three natural fundamental divisions under which they are grouped: the science of normal man; the science of diseased man; and the art of controlling disease. The

science of normal man is subdivided into morphology, the study of structure; physiology, the study of function; and psychology, the study of experience and behaviour. Of these it is largely morphology and physiology with which medicine has to deal. Morphology contains the subjects of anatomy, histology, embryology, physiology; those of physiology in the narrow sense, physiological chemistry, experimental embryology and morphology, and pharmacology.

For the second division, the science of diseased man, there exists the comprehensive term pathology. This applies to disordered functional and psychic as well as anatomic states. Pathology is all that anatomy, physiology and psychology are with the engrossing and difficult element of perturbation, deflexion, or short-coming added. It represents the results of the action of abnormal environment, external and internal, upon the individual organism—etiology—and the effects of abnormal and imperfect development—teratology. It is the study of the reactions between the individual as determined by heredity and development—human constitution—and the environment which lead to diseased conditions. Such subjects as bacteriology and toxicology are merely subdivisions of etiology.

These first two fundamental divisions constitute the *science* or the *principles* of curative medicine.

For the third division, the art of controlling disease in the individual, the term therapeutics understood in its broadest sense may be employed. It is separable into three main subdivisions: diagnosis, the art of investigating disease as the prerequisite to rational treatment; therapy, the treatment of disease proper; and prognosis the art of foretelling the course of disease and the effect of treatment upon it.

This third division constitutes the *art* or the *practice* of curative medicine.

The complexity and diversity of medical practice is the justification for the great number of specialities into which it is divided. No man today is competent to compass the whole field of diagnosis and therapy. Thus we have the internist and the surgeon, the ophthalmologist and the urologist, the roentgenologist and the laboratorian, etc. Diverse, they are working nevertheless under a common banner toward the same goal.

Preventive Medicine and Social Medicine also have their *Principles* and their *Practice*. They derive these in part from Curative Medicine but also have fields distinctively their own. Thus the former has the science of Epidemiology, whereas the latter is based on what may be termed Medical Sociology.

Medicine as a Profession

Medicine is considered one of the learned professions and traditionally has been classified along with the cloth and the bar. Just what is a profession? It is an occupation the practise of which involves a liberal education and mental rather than manual labor. But not all branches of medicine require only the exercise of mental activity; surgery demands in addition to learning a high degree of technical skill and manual dexterity and therefore is of the nature of a craft as well as that of a profession. As a profession, modern medicine is more nearly akin to engineering than either to law or to theology. Both medicine and engineering rest for the foundation of their practice on the principles of modern science and represent the application of these principles to the control of natural phenomena. They differ in that the practitioner of medicine has to do with animate structures and forces, that of engineering with inanimate.

The Definition of Medicine

The fashioning of a definition of medicine which will represent in full the meaning which I have endeavoured to outline is difficult. The terseness of the old definition, *ars medendi*, cannot be attained; the complexity of modern medicine is too great to permit of such simple statement.

Medicine is that branch of knowledge and activity which through striving to an understanding of man, his development, and his environment endeavors to discover, recognize, predict, and control those phenomena and conditions, physical, chemical, psychic, and social, which are inimical to health and biological progress, and causative of disease, old age and death. Or in other words: *Medicine is that branch of knowledge and endeavor which has for its subject man as susceptible to and suffering from disease, old age, death and biological deterioration. It is the science of the structure, function, behavior, and development of man and the science of his environment in their potential and actual manifestations and interactions both normal and pathologic: it is the art of the recognition, appraisal, prevention, alleviation, and cure of disease and the furtherance of physiologic processes and biologic evolution; it is the professional practice of these matters in their individual, cultural (historic and philosophic), and social (educational, legal, economic, and ethical) relationships.* Except for the concept of social medicine this definition is similar to that given by Auber [13] (quoted at the beginning) as long ago as 1853. It is remarkable

[13] Auber, T. *Traité de la Science Médicale.* Paris, Baillière, 1853.

that he conceived of medicine in this broad sense in his day. Rist is surprised even at the definition given in the famous dictionary of Littré: "Art which has for its object the conservation of health and the cure of disease and which is founded on the science of disease or pathology"; for at that time the founding of medical art on pathologic science could be considered little less than prophetic. Yet this definition sounds antiquated alongside that of Auber. Medical science in its entirety is not contained in pathology. It is true that this discipline stands at the center of medicine. Medicine has been likened to an hour-glass. Pathology represents its neck. As the sand concentrates toward the neck of the hour glass so do the fundamental medical sciences converge toward the science of pathology; as the sand leaves the neck to spread out in divergent directions so do the clinical divisions of medicine branch out from the point of pathology from which their theory derives. There is no science as wholly and completely medical as is pathology; yet as I have shown in my discussion of phyto-pathology even this discipline has its ramifications outside the distinctively medical field.

I have tried to picture in this discussion a great field of human endeavor and knowledge which though made up of many parts, and making use of the findings and techniques of many sciences, is nevertheless an individual and organic whole in its own right. I can do no better in closing than to quote further from Auber:

> Medicine is incontestably an autonomous and autocratic science. In truth, it does not arise from any other; it exists in its own right and will still live when the other sciences no longer exist. It has its fundamental principles, its special dogmas, its own proper genius, its particular logic, its language, its methods, its rules and scientific forms. Nevertheless, in spite of all this independence, is it not a fact that medicine basks in the light of the whole of human knowledge and borrows wholesale from it? Yes, doubtless; but it makes these appropriations with prudent reserve, and always with the express condition of submitting them to the control of its own fundamental principles and to the discipline of its own constitution; and always in such manner that while profiting from the gifts of other sciences it never permits these superb auxiliaries to recompense themselves for certain small services by the usurpation or parceling out of its natural and privileged domain.

MEDICINE IN THE DUGOUT

LEWIS J. MOORMAN

Soon after Teddy Roosevelt had learned to be an all-round good American, cow-punching and cattle ranching on the Little Missouri, my professional lot was cast upon the Oklahoma plains not far from the foothills of the Rockies. Landing in the afterglow of the life so vividly depicted by Owen Wister and Frederick Remington, the adventure was rich in romance. In my imagination I followed the buffalo and the antelope across the glamorous horizon with the hope of recovering a vanishing period in American life. But in reality, my lot was with the homesteaders and not with the roving cowboys and my time belonged to the hard-working men and women who fenced the land, followed the plow and brought permanent domestication to the trackless plains. They were the people who still live in Hamlin Garland's *A Son of the Middle Border*. According to William Dean Howells, this remarkable story of life on the prairie is so realistic " you can smell the sweat on the horses and see the chinch-bugs climbing the wheat straws."

Locating twenty miles from the nearest railway station, I drove a team of Indian ponies on the rim of the dust bowl thirty-five years before it had a name; I met the " deserts on the march " nearly four decades before Paul Sears wrote his interesting book under that title; I was living in this beautiful country with the people who transformed it into a land of peace and plenty long before Edna Ferber hastily seized the bizarre and unconventional in both nature and society and unjustly enveloped Oklahoma in the blinding " red dust " of her *Cimarron*, and left us surrounded by swashbuckling, two-gun desperadoes. I was on the ground approximately forty years before Steinbeck's *Grapes of Wrath* defamed a great commonwealth and threatened to make Okies of us all.

Though there were many golden days throughout the seasons, I learned to fight the blinding blizzards in winter, to ford the swollen streams in springtime, to endure the hot winds in July and August and to revel in the glorious autumn days when the mauve Indian summer enveloped the land, and the long silent nights were broken only by wild geese calling overhead, or the weird yodeling of coyotes in the sand hills.

During those early days I gathered valuable experience through the haphazard practice of the time, going from dugout to sodhouse and from

sodhouse to prairie shack in the service of my patients. There were times when the way seemed dark. My experience was not checked by the helpful eye of superiors or enriched by contact with daily associates. My medicine was the child of unaided initiative, sired by inescapable responsibility. But remembering the advice of William Harvey, I tried to follow "the path nature walks." This professional isolation was partially compensated by a vague inner consciousness of contact with the muse of medicine. My daily rounds presented many incidents which helped to keep this spirit alive and made close clinical observation imperative.

I recall a wizened old homesteading bachelor, who lived in a dugout under the high bank of a creek, like a lone river-rat in his hole. One time when called to his ramshackle abode to see about his herpes zoster (shingles), pigs ran snorting from under his bed and a squawking old hen came flapping from the shelf above his resting place. Through her motherly instinct the hen was hovering over the mystery of life, while patiently awaiting the pipping of the shells and the thrilling first peep of her chicks, and the pigs were enjoying happy domicile while their owner was dreaming of fried chicken and broiled bacon. While engaged in the care of this crusty old recluse's body, which, though rusty and unkept, was visible, tangible and approachable, I was looking across the wide chasm which no one has ever spanned, wishing for a clue to the psychological phenomena in the secret recesses of his brain. Was it possible that he entertained a poetic affinity for pigs and chickens, or was this sharing of shelter merely a prosaic expression of common generosity? Or, independent of his thinking, could it have been only animal instinct on the part of chickens and pigs, taking advantage of a crack in the door which he was too lazy to mend? Be that as it may there was never a note of embarrassment or apology. Disregarding the motive in the old man's mind, his doctor recognized the universal need of companionship, and was interested and tolerant.

In a two room sodhouse on the edge of the salt plains, a mother and three small children were down with the smallpox. The father did the cooking and nursing, while they peeped out from crusted countenances with domestic curiosity. The disease was mild and in due time all the victims emerged from this loathesome experience with smooth and shining faces. One day while on call to lift the quarantine, they, in a friendly spirit of gratitude, requested me to join them in front of the eroded sodhouse for a kodak picture. When the request was declined, the mother said "Oh please do, having you in the picture will make it more homely like."

Knowing this appeal came straight from the heart and that it represented an expression of genuine esteem, I gladly acquiesced. After all, there was much truth in what she said. At that time I was exhibiting a shaggy vandyke to disguise my youth, and under the pressure of an epidemic, my clothes were carelessly worn, and they had acquired the weather-beaten appearance so characteristic of the busy country doctor in the horse and buggy days.

One afternoon a young woman called at my office to consult me about her little girl. After hearing her story and asking a few questions, I said, " Don't you think you had better bring your child in for an examination so I can find out just what is wrong and what can be done to help her?" Without hesitation, she replied: " Oh I know what's the matter with her, she has the go-backs." Having never heard of the " go-backs " and being a novice in the practice of medicine, I determined not to reveal my ignorance and hastened to inquire " How do you know your child has the go-backs?" " Because I have measured her and her body is not seven times as long as her foot. You know that is a sure sign." I decided not to take issue with her about the diagnosis but insisted that an examination was advisable. To my surprise, she abruptly terminated the conference by saying, " Well, doctor, I have tied a string around the buggy wheel, if she is not better when that wears off I will bring her in." I am still longing for more information about the " go-backs," and fearing I may never know when to tie a string around the buggy wheel. Two years later, this same woman administered an overdose of coal oil to a younger child for the croup. She had continued to subject her children to the hazards of ignorance and over-confidence in her ability to determine their needs.

In the winter of 1901 I was called to attend a mother who was giving birth to her third child. Crossing the Salt Fork of the Arkansas at twilight, it was observed that a swift north wind was sweeping the ford and that small waves were breaking on the sand bars of the south bank, leaving a fringe of fragile ice. It was obvious that we were in for a genuine bit of winter. Not long after leaving the river, a distant light shone dimly through the blearly atmosphere of the storm ridden night. No doubt it was placed in the window to serve as a guide for the doctor. Progress against the blinding wind was becoming ever more difficult, which made the light appear as a friendly beacon to a troubled mariner. But soon my ponies were in the straw thatched stable and I was enjoying the warmth of a roaring fire in the big kitchen stove while making ready for the great event.

Though beyond the threshold of this humble farmhouse nature seemed

to be in a state of wild confusion, according to all indications the phenomena of birth were following the conventional course and there was little to do except await results and witness the immemorial renewal of life. After a few hours of hard work, with the merciful aid of partial anesthesia, the mother, happy in her freedom from travail, was tucked away with a buxom boy at her breast. The kitchen table had been cleared and on the shining oil cloth a great loaf of homemade bread, a dish of golden butter, a generous supply of alfalfa honey in the comb, and a cup of coffee steaming hot warmed the cockles of my heart. On such a night with the homeward journey in anticipation, this was a perfect repast.

It was long after midnight when I reached the river. The ford was frozen over and the ice was too thin for a dry-shod crossing, and too thick for light ponies to successfully break through. I drove back for help and the father of the newborn babe came with a draft horse to break the ice so we could get across. The wind had partially subsided and the cold was not immediately so obvious, but it was not long until my body was chilled to the bone and there was a vague consciousness of progressive numbness of fingers and toes. My ears were as fragile as candied fruit and my gloved fingers were freezing in my pockets. While my ponies followed the frozen ruts, to stimulate circulation I climbed out of the buggy and walked the unbroken prairie, alternately skimming the frosted buffalo grass and wading through clumps of tall bluestem, tufted with fluffy snow, which sifted through every crevice in my clothing. Regardless of this rather strenuous exercise, the penetrating cold seemed to be driving the last vestige of warmth from my body.

Nearing the point of desperation, I was imagining the early morning discovery of unattended ponies and a rigid body ready for a frosty inquest, when suddenly a light appeared in a farmhouse not far away. Fortunately it was time for county people to chunk up the fires and look after the livestock. While this humble home was not among those western abodes where Emerson found his beloved Homer on the book shelves, it adorned the plains and averted tragedy. After a cordial reception with motherly attention to my frostbitten appendages and a little time before a red hot wood stove, I was ready for the road. A borrowed robe, hot irons for my feet, and the promise of the rising sun, made the resumption of my journey safe and filled my heart with gratitude.

One bright spring day, in answer to a call from across the Salt Fork, I drove to what was known as the Island, where there was a good ford only two miles from my patient's home. The stream was raging and there was no hope of getting across with a team of small ponies. A near-by farmer,

seeing my plight, suggested that his old horse "bred and born on the river," could stem the flood if I could stick on. Though not sure of my ability, I accepted the challenge. As we bridled my raw-boned confederate, the farmer exclaimed: "My God, the boys are all off with the saddles, but I can tie a rope around him." Reluctantly I acquiesced in this disconcerning proposal and made ready for the adventure.

When the rope was in place and my medicine case strapped between my shoulders, the farmer gave me a hand for the high mount. After reaching the water we had solid footing for a short distance, but presently we plunged into a swift current and before old rawbones could get his bearing and find his stroke, the cold water was sweeping my armpits. After alternately stumbling across shallow bars and swimming the deep currents, we gained the opposite bank. Though the muddy water, thick enough for top-soil, was streaming down my trousers and over-flowing my shoes, we had two miles to go.

Finally arriving at my destination, I found a corpulent old woman with a gallbladder full of stones and a house full of children. Though in her sphere, she had lived a full life and had almost reached the limit of her usefulness, she was suffering from gallstone colic and was sorely in need of the relief and comfort which only a doctor could give. After doing the best possible for her and receiving her blessing and enjoying the expression of satisfaction so obvious in the faces of these little denizens of the sand hills, I was ready for the return trip. But to my chagrin the news of my presence north of the river had traveled to another household and it was necessary for me to see a sick child on the next quarter section. This mission completed and again passing through "hell and high water," I returned to my buggy and ponies with a dampened sense of achievement.

Two years after making this call I received a small load of kaffir corn for my services.

In the summer of 1903, while the hot winds were parching the pasture lands and converting great fields of succulent young corn into ghostly shambles of blighted bounty, I was making long drives to see a mother and two little children down with typhoid fever. They lived in a windswept one room box house with a dirt floor. There was a small lean-to, which served as a kitchen and contained an improvised bunk where the husband slept. The nearest neighbors were half a mile away, but they carried food and shared their time, giving as much nursing care as possible without seriously neglecting their own homes.

We were facing a difficult situation. The proper care of typhoid patients required many services and environmental conditions which could not be

provided. At the end of two weeks the outlook for the mother seemed grave. The husband was informed, but it was impossible to interpret his mental reaction. He was uncommunicative, of little help about the house, his work on the place was haphazard and he was without funds. In retrospect my inability to sense his psychological conflicts and to thwart the impending catastrophe seems inexcusable. A day or two after he was informed of his wife's serious plight, a neighbor called and urged me to come in great haste. Speeding behind a fresh team in anticipation that the children might be motherless before I arrived, to my surprise I found their father stretched on the ground near the woodpile, with a bullet hole in the middle of his forehead. A 22 rifle at his side analyzed the episode. He had sought surcease through attempted suicide.

Though stupid and dazed, he was not in severe shock. We tucked him in the kitchen bunk and a probe was introduced to see if the bullet had lodged between the layers of his thick skull, but after permitting the probe to gently settle to a depth of two or three inches in his brain without meeting resistance, it was withdrawn and an antiseptic dressing applied. The next day he was not only conscious and remorseful, but ravenous for food. In spite of this shocking experience, the mother improved and the whole family entered upon an uneventful convalescence.

After a few years these unfortunate people passed from my observation, but the bullet, which found a resting place somewhere in the insensitive brain of this spineless vagabond seemed not to cause any serious trouble.

On a hot summer night after the construction gang had laid steel into the little town of Nash and switched bunk cars on a side track, a bunch of negroes on the construction job got drunk and staged a free-for-all with butcher knives and razors. Two of them were found in pools of blood on the dirty floor of a bunk car. With no assistance, I proceeded to repair the damage. The nearest doctor was 20 miles away and it occurred to me if they could get drunk and cut each other up without an anesthetic, they could lie still and be sewed up without the aid of medicine's greatest boon. All was well until I came to the big mulatto with a five inch cut in his scalp and a gaping stab wound at the left border of his heart. While I made haste by the light of a kerosene lamp my patient writhed and yelled in spite of the fact that his alcohol and loss of blood had laid him low. Repeatedly he cried out:

"Oh Doc, if the money's all you want, please go way and let me die." To his companion holding the lamp: "Oh, John, for God's sake come, take this doctor off of me! Can't you see he's killing me!" "For God's sake, Doc, Please go way and let me die!"

The job completed, we chucked him in a double decker and his wounds healed by first intention, with not even a stitch abscess to mar the field of operation. No doubt he was immune to the dirt of his own habitat or perhaps there was a bit of the marvelous mold of penicillin-fame or some other inhibiting factor in the footworn straw that carpeted the bunk car.

One fine morning while standing in front of the combination hardware and drugstore, I learned that a former patient had sold out and was moving to Nebraska. Upon investigation, it appeared that he had paid his blacksmith and all his store accounts with never a word about his doctor's bill, which represented medical services rendered during the previous winter when snow and ice made country practice doubly difficult. Immediately I drove out to his place, determined to collect the hard-earned fees. Upon my arrival he and his family were ready to drive off with two wagonloads of household goods. Obviously, he was disturbed by my appearance on the scene and haltingly explained how he had paid as far as his money would go and that he intended to mail a check to cover his doctor's bill.

Knowing he had received a good price for his grain and livestock, and hoping he might have the cash in his pocket, he was urged to pay the bill. With some embarrassment, and a display of genuine sentiment, he finally said, " Doc, I ain't got that much to spare, but if you want to take that extra horse, and settle the bill, he's yourn." Then, for the first time, I saw a good-looking bay horse tied behind the rear wagon. Thinking this might be my last chance, I gave him a receipt in full, transferred the leash to the rear of my buggy, learned that the horse's name was Billy, and followed the prairie schooners to the main highway, where we parted with a mutual sense of restrained satisfaction.

There were tears in the woman's eyes and I could imagine the turmoil in her heart. To my knowledge, one of her babies had been born in the little home she was leaving behind and there she had bravely contended with the domestic problems of farm life and the familiar scenes were incorporated in the knot of her soul. Now that the ties were being broken, she was giving expression to long suppressed emotion. Under the spell of this episode there was some satisfaction in the thought that I had not succeeded in collecting money. Obviously, it would take all the cash they had, and something plus, to partially recompense her heartache and make another place seem like home.

These examples of the crude conditions encountered by the early day country doctor and the intimate relationship existing between him and his pioneering patrons, give a fair conception of what life meant to doctor and patient while the first homes were being established on the prairie.

Fearing this account of early day practice in Oklahoma might be misleading, it should be noted that there were many competent, hardworking farmers occupying the choice land where the fallow soil yielded bountiful crops of corn, wheat and alfalfa. These were readily marketable and the returns were converted into better homes, more spacious barns and outhouses, finer livestock and more efficient farm machinery. As a result of this progress, there was increasing comfort and profit in the practice of medicine to offset the toil and tribulation of the pioneering days.

In spite of the early hardships and the many trying experiences, there was ample compensation in the long leisurely drives, day and night, across the far-flung prairies. It was good to see nature in the raw and man in the making, to move in vast areas of silence surrounded by fascinating horizons, beyond which imagination played with pleasant dreams built upon eager hopes and professional ambitions. In " The Song of the Open Road," Walt Whitman said: " Now I see the secret of the making of the best persons. It is to grow in the open air and to eat and sleep with the earth."

The trails I traveled have been mercilessly scored by powerful road machines, the dainty wild flowers which hedged them, and the friendly clumps of plum brush, bluestem and horse mint, which perfumed the way and shielded the furtive quail, the dynamic cardinals and the colorful road runners, have been destroyed. The roads have been given over to motored vehicles; the horse has been retired to suburban saddle clubs, where his freedom is restricted, his initiative throttled and his intelligence insulted. Those hard, happy days are gone forever, but the memory of them will limn " the last roundup."

TEXTS AND DOCUMENTS

A LIST OF SURGEONS IN PRACTICE IN LONDON AND ITS SUBURBS IN 1641

R. R. JAMES*

The following list of surgeons is taken from a manuscript in the Public Record Office relating to Exchequer business and so far as I know has not been published before. The manuscript is rather illegible in places; its reference number is: E. 199/251. It gives the returns made by the Barber-Surgeons' Company to an Act of Parliament in the time of Charles the First in connection with disbanding the army in the North, *i. e.*, that connected with the Scottish rebellion. The list contains the names of barbers and surgeons and naturally contains the names of many more barbers than surgeons. It begins with a preamble and then follow fourteen pages of names in alphabetical order, about 26 names to the page. Each surgeon seems to have paid one shilling as his contribution. It was copied for me by my friend the late Mr. Harvey Bloom. Taken as a whole it gives us a rough surgical directory for the City 300 years ago. Surgeons in the City were under the control of the Barber-Surgeons' Company at this date and to a far smaller extent of the Bishop of London. The names of Foreign Brothers do not appear on the records at Barber-Surgeons' Hall much before the year 1684. While the names of some may have been omitted, and at least one is illegible, I think we have here a fairly accurate idea of those in surgical practice in London at that date. We are also enabled to identify some of those surgeons who were absent on military service.

The preamble and list are as follows:

. . . ght hon Sr Edmund W, . . .
maire and ye rest of ye high . . .
Citie of London by ye . . . of Parlia . . .
this present yeare . . . Caroli intituled

An Act for the speedy pr . . . of money for the disbanding the armes and setling the peace of the twoe Kingdomes of England and Scotland.

* *Cf.* a similar publication by the author, *Medical Practitioners in the Diocese of London, Licensed under the Act of 3 Henry VIII, c. 11, an Annotated List 1529-1725*, by J. Harvey Bloom and R. Rutson James, Cambridge, 1935.

The Cl and Wardens of the Companie of Barber Surgiones of London Doe this 17th day of August 1641 humbly certifie that wee have collected of these severall members freemen of Or companie the p..ticular of Masters, wardens, Liverye and Freemen, their proporcons and rates and to the totald same have subscribed or names. Alsoe Wee have hereby certified all those that have either paid to you the High Commissioner here in London or in ye pts adjacent. Lastly wee have hereby certified the . . . naymes of ye companie whoe have made noe appearance at all. All wch wee leave to yr further consideration.

Liverymen.

Pinder, John. Surgeon. St. Bartholomew the Lesse.

Apprenticed to Thomas Crowe at Barber-Surgeons' Hall and took his Freedom in 1610/11, under the name of Pindar. On Jan. 19, 1626 he was chosen into the Livery, owing to many deaths having taken place due to the late visitation, and paid the fee of XLs. In 1638 he was a subscriber of £5 to the building fund for the new anatomical theatre and was Junior Warden of the Company in 1641. In 1648 he was chosen one of the trustees of the Arris bequest. Pinder was Surgeon to St. Bartholomew's Hospital, 1632-1647. His will was proved 21 May, 1647.

Fleete, Edward. Surgeon. St. Benedict Sherehogg.

Apprenticed to James Mullyns (Molins) at Barber-Surgeons' Hall, 1610/11, and took the Freedom in 1617/18. In 1630 he was fined XXs for not reading lecture according to his turn. He subscribed £5 to the building fund and attended among others at the dedication of the new anatomical theatre on 6 April, 1638, when the Lords of the Privy Council were invited to attend the first "anatomicall publique operations" given there. He had to help carry up the "diett and wait at dinner." Fleete was Surgeon to St. Thomas's Hospital, 1622-1648. He died in the latter year.

Arris, Edward. Surgeon. St. Sepulchre's, Smithfield.

Alderman Edward Arris was the son of Jasper Arris who held office as Warden of the Company in 1622. The son was born in London in 1591. He learnt his art with his father and took the Freedom by patrimony in 1617. He joined the Livery in 1627 and was granted the diploma to practise surgery in 1629. In 1632 he was Steward of Anatomy and Master of Anatomy in the following year. A few years later he was fined 6/8 for using bad language. In 1648 he was chosen an examiner of surgeons and he was Master of the Company in 1651. Arris was elected Alderman of Bridge Without Ward in 1663 but he soon applied for his discharge and paid a fine of £300 to the City. In 1645 he founded the Arris anatomy lecture. When the Company sold their plate in 1649 Edward Arris bought the celebrated cup which had been presented by Henry the Eighth and gave it back to the Company. He died 28 May, 1676 aged 85 years and was buried in St. Sepulchre's. His will was proved in 1676. (P. C. C., Bence, 59.)

Rainsford, Prosper. Surgeon. St. Botolph, Aldersgate.
Freeman, as Ranisford, 1605/06.

Scott, John. Surgeon. St. Thomas the Apostle.
Perhaps apprenticed to Leonard Saunders in 1627/28.

Tomlinson, Thomas. Surgeon. St. Mary Woolnoth.
On August 9, 1647 he petitioned the Company for charitable relief. He had fallen into great poverty and want; the Court, calling to mind his former good service to the Company granted him £10.

Cooke, Thomas. Surgeon. St. Mary Woolnoth.
Perhaps apprenticed to John Lorde in 1627/28 and probably dead in 1663.

Meredith, John. Surgeon. in Bridewell.
Subscribed £3 to the building fund in 1638. In 1654/55 he was fined £1.5s. for holding a private anatomy together with Ralfe Thickness. He was buried at St. Bride's, 2 April, 1656.

Burton, Thomas. Surgeon. St. Olave's Southwark.
Perhaps apprenticed to Edward Waight 1621/22 and Freeman, 1629/30. Served the office of Warden in 1660 and 1661.

Burton, William. Surgeon. in Wapping.
Perhaps apprenticed to Thomas Younge in 1616/17.

Binns, Joseph. Surgeon. St. Andrew, Highholbourne.
Apprenticed to Joseph Fenton in 1629/30. Freeman. 1636/37. Surgeon to St. Bartholomew's Hospital, 1647. Warden of the Company 1662 and 1663. Of Butchers-Hall Lane in 1659. Died, May, 1664.

Eden, Richard. Surgeon. At ye Lock in Southwark.

Hollier, Thomas. Surgeon. St. Faithes.
Apprenticed to James Molins 1629/30. Freeman, 1636/37. Surgeon to St. Thomas's Hospital, 1644-70. Father of Thomas Hollier, jun.

Molins, William. Surgeon. St. Botolph Aldersgate.
Freeman, 1638/39.

Biggs, Thomas. Surgeon. Stebenheath. (Stepney.)
Subscribed £3 to the building fund in 1638.

Freemen

Abbs, Thomas. Surgeon. St. Mary at Hill.
Apprenticed to Andrew Mathew, 1617/18. Freeman, 1624/25.

Bowtell, Nathaniel. Surgeon. Chancery Lane.
Apprenticed to George Dun, Surgeon, 1632/33. Freeman, 1640/41.

Blaikelock, Samuel. Surgeon. St. Clement Danes.
Freeman, 1640/41.

Burde, Sturmin. Surgeon. St. Mary at Hill.
Apprenticed to Wm. Marshall, 1612/13. Will proved 11 Nov. 1644.

Blanch, William. Surgeon. St. Stephen Coleman Street.
Will proved, as Blanche, 1648. (P. C. C., Wootton, 248.)

Coppinger, Adam. Surgeon. St. Dionis Backchurch.
Possibly the "one Coppinger" who had a dispute with Edward Molins in 1640. The Court decided against Molins and he was fined for bad language. Early in 1641 Molins was still refractory and was fined 40s. Coppinger took the Bishop of London's license to practise 25 May, 1636. He was then of St. Giles without Cripplegate.

Cooke, Daniell. Surgeon. St. Dionis Backchurch.
Apprenticed to Edward Handsome, 1619/20. Freeman, 1626/27.

Evans, John. Surgeon. St. Benedict Finck.
Perhaps apprenticed to Richard Yapp, 1618/19. Freeman, 1625/26, or to George Westwood, 1626/27. Freeman, 1633/34.

Foreman, Thomas. Surgeon. Finch Lane.
Apprenticed to William Clowes, 1622/23. Freeman, 1631/32.

Harvye, John. Surgeon. St. George Southwark.
Perhaps apprenticed to Edward Gorton, 1626/27. Freeman, 1634/35. Will proved 1660. (P. C. C., Nabbs, 216.)

Harvye (?), John. Surgeon. . . . Streete.

Heydon, Jacob. Surgeon. St. Clement Danes.
Apprenticed to Arthur Dowghton, 1629/30. Freeman, 1634/35.

Hurste, John. (Profession not stated). St. Peter Westcheape.
Perhaps apprenticed to James Smether, 1608/9: Freeman, 1617/18.

Hogsflesh, John. Surgeon. Knightrider Street.
Apprenticed to Roger Johnson, 1626/27, as Hoggefleshe. Freeman, 1639/40, as Hogflesh.

Harris, Nathaniel. Surgeon. St. Olave Southwark.
Freeman, 1610/11.

Heath, Nicholas, Jun. Surgeon. St. Stephen Coleman Street.
Possibly a son of Nicholas Heath Sen. of the same address. (See below.)

Heyward, Richard. Surgeon. All Halowes ye Great.
Will proved 17 Sept. 1641. In July 1632 Richard Hayeward petitioned the Court on behalf of his son Richard Heyward, a captive among the Turks. He was granted £10 provisionally.

Hopkins, Robert, Sen. Surgeon at Ratcliffe.
A man of this name serving as surgeon at sea at this time.

Harris, Thomas. Surgeon. St. Olave Southwark.
Perhaps apprenticed to Nathaniel Harris, 1628/29. Freeman, 1640/41, and possibly dead in 1660 when the will of Anna, widow of Thos. Harris, was proved.

Hamond, Walter. Surgeon. St. Dunstan in the East.

Perhaps apprenticed, as Hamon, to Arthur Dowton, 1608/9. Freeman, as Hamond, 1615/16.

Murrey, Robert. Surgeon. Redcrossestreet.

Nicholas, Caleb. Surgeon at Sea. Sweateing Lane.

Will, as of Shoreditch, proved 27 Aug. 1674.

Nevell, Jarvis. Surgeon. Whitecrossestreet.

A Gervas Nevill, Barber-Surgeon, of St. Clement Danes died c. 1660 (Will, P. C. C. Nabbs, 140).

Needler, Samuel. Surgeon. lower end Broad Street.

In 1648 he complained that he was required to bear arms, notwithstanding his exemption therefrom, and craved assistance of the Court, which was granted.

Sureties, Robert. Surgeon. Wapping.

Stockwood, Richard. Surgeon. in G . . .

Apprenticed to James Clarke, 1627/28. Freeman, 1636/37. Will proved 16 Oct. 1661.

Simonds, Thomas. Surgeon. . . .

Thorpe, William. in Phillip Lane.

Wright, Adam. Surgeon. Drury Lane.

Apprenticed to Richard Daniell, 1629/30. Freeman, 1636/37. Will proved 1648. (P. C. C., Essex, 8) as of St. Clement Danes.

Wright, Christopher. Surgeon. Christchurch.

Wateson, John. Surgeon. St. Geiles Fields.

Freeman, 1640/41. Perhaps a son of Richard Wateson. (See below.)

Wright, James. Surgeon. St. Martin in the Fields.

Apprenticed to Edward Harris, Surgeon, 1634/35. Freeman, 1639/40.

Went, . . . Surgeon. St. Ann Aldersgate.

Perhaps Thos. Went, Apprenticed to Wm. Walker, 1604: Freeman, 1610/11.

These have been Masters.

Heydon, John. Surgeon. St. Andrew Holborne. Paid to Sir Nicholas Rainton.

Perhaps Freeman, 1613/14. Warden of the Company, 1634, 1636, Master, 1640. Subscribed £5 to the building fund in 1638. In 1647 he complained to the Court of the rude behaviour and "sawcy" language of his apprentice. The Court ordered the apprentice's "haire, being undecently long, to be cut shorter."

Clowes, William. Serjeant Surgeon. in Chareinge Crosse. Paid at Whitehall.

Son of William Clowes, Surgeon to St. Bartholomew's Hospital. Born, c. 1582. Apprenticed to his father. Took up his Freedom, 1605, and joined the Livery in 1615 when he was Surgeon to the Prince of Wales. Serjeant Surgeon to Charles the First. Master of the Company, 1626, 1638. Will dated 28 March, 1630. Died, 1648.

Wateson, Richard. Surgeon in ordinary. Holborne. Paid at Whitehall.

Served the office of Warden, 1622, 23, 24 and was Master in 1630. He subscribed £10 to the building fund in 1638. About the year 1644 the Company borrowed £1200 from Wateson upon sealed bonds. Wateson having been declared a Papist and delinquent, his property was seized and the bonds found in his strong chest. The Company compounded with the sequestrators for £500. In 1650 Wateson was petitioning the Court for news of his £1200. At the dedication of the new theatre Wateson acted as Gentleman Sewer to the Lords of the Privy Council.

Andrews, Michiell. Surgeon in ordinary. St. Martin in the Fields. Paid at Whitehall.

In 1625 had a pension from the King for life of £150. He was Master of the Company in 1635 and subscribed £10 to the building fund in 1638. Died, 1661.

Those have been Wardenes.

Browne, Martin. Surgeon. St. Gregories parish. Paid to Sir George Whitmore.

Born, c. 1590. Apprenticed to Thomas Clemence and admitted a Freeman 1613. Served as Warden 1640, 1645, and Master in 1653. He was the donor of a loving cup to the Company. Died, 16 April, 1655. Will proved 24 April, 1655.

Heath, Nicholas. Surgeon. St. Stephen Coleman Street. Paid to Sir George Whitmore.

Served the office of Warden of the Company, 1635, 1639 and Master, 1643. Subscribed £5 to the building fund in 1638. In 1646 he paid £200 to the Company for an annuity of £26 per annum for ten years for himself and Grace, his wife.

Collins, Thomas. Surgeon. St. Katherine by the Tower, liveing at Camberwell.

In 1614 was fined £10 for going to sea not having his chest viewed. Warden of the Company 1639, 1644, Master, 1648. Pressed for service in the North in 1639 and sent to Newcastle to oversee the conveyance of surgeons and their chests, provisions etc. for the war. For this service he received the sum of ten shillings from the Company. Was one of the trustees of the Arris bequest and the donor of a cup to the Company, which is still in their possession. Took the Bishop of London's License to practise 20 April, 1635, of St. Peter ad vincula, in the Tower. Perhaps will, P. C. C. Ruthin, 373.

These of ye Liverye.

Kinge, William, Surgeon. Catteaten (Street).

Son of Edward Kinge; Freeman by patrimony 13 June, 1609. Surgeon to St. Bartholomew's Hospital 1643 to 1656. He resigned on account of blindness. Served the office of Senior Warden of the Company 1646 and Master 1650. In 1645 he presented the Company with a large tortoise shell with their arms painted on it which is still at the Hall. Had the Bishop of London's license to practice, 15 Nov. 1632.

Reason, Thomas. Surgeon. St. Clement Danes.

Apprenticed to Thomas Cooke, 1625/26. Freeman, 1632/33. Fined ten shillings in 1634/35 for not presenting a case that died.

Roberts, William. Surgeon. High Holbourne.

Perhaps apprenticed to Richard Smith, 1628/29. Freeman, 1635/36.

Sayve, Edward. Surgeon. St. Clement Danes.

Perhaps the Edward Save, citizen and barber of London who, on 14 July 1624, had the Archbishop of Canterbury's licence to practise surgery in the dioceses of Canterbury, London, Winchester, Lincoln, Norwich, Salisbury and Rochester. Reg. Abbott. 2. fo. 206.

Williams, Robert. Surgeon. St. Martin in the Fields.

Perhaps apprenticed to Walter Barton, 1612/13. Freeman, 1620/21.

The names of those yt have not appeared . . . in their rate nor produced any certi(ficate).

Liverymen.

Smith, Richard. Surgeon. Little Brittaine, being one of ye King's surgeons in ye North.

Bennett, William. Surgeon. Fridaye Streete.

Perhaps Freeman, 1615/16. Will proved 1650. (P. C. C., Pembroke, 3.) Had the Bishop of London's licence to practise 18 Dec. 1633.

Soare, Francis. Surgeon. Old Cheape. being in ye King's service in ye North.

Apprenticed to John Scott, 1613/14. Freeman, 1620/21. In 1638 he was reported to the Court for having dissected at his own house contrary to the ordinances, for which he was later fined £5.

Laurence, Geilis. Surgeon. at Wapping.

Perhaps Freeman, 1609/10.

Heale, Geilis. Surgeon. in Drury Lane.

Apprenticed to Edward Blaney, 1611/12. Freeman, as Hele, 1618/19.

Warde, Hughe. Surgeon. St. Andrew Holbourne. in ye King's service in ye North.

Apprenticed to Richard Cooper, 1624/25. In 1635 was absent from the lec-

tures, and defied the Masters, using "approbrious language." Had the Bishop of London's licence to practise 26 Feb. 1633/34.

Foster, Francis. Surgeon. St. Dunstan in the West. in ye King's service in ye North.
Apprenticed to Richard Wateson, 1628/29. Freeman, 1635/36.

Freeman yt have not . . .

Hares, Anthony. Surgeon. at Plim . . .

Hughes, Alexander. Surgeon. Aldersgate Street.
Apprenticed to Hugh Napkin, 1624/25. Freeman, 1634/34.

Hailes, Edward. Surgeon. in ye King's service in ye . . .

Henbricks, Robert. Surgeon. at Sea.

Hudson, Thomas. Surgeon. Barking parish. in ye King's service in ye North.
Apprenticed to John Ireland, Surgeon, 1630/31. Freeman, 1637/38.

Hughes, Thomas. Surgeon. Armitage.

Harriyonge, William. Surgeon. at Rochester.

Keyme, Caleb. Surgeon. at Henry Keyme, Barber, Tower Street. (Presumably his father.)
Freeman, 1636/37.

Kellett, Richard. Surgeon. at Westminster.
Freeman, 1626/27.

Kitchin, William. Surgeon. at sea.
Will proved 1672. (P. C. C., Eure, 101) as Surgeon, of Shorwell, I. of Wight.

Lillington, Alexander. Surgeon. at Hoggsdoun (Hoxton).
Freeman, 1614/15.

How, Daniel and Oliver. Surgeons. Marke Lane. at sea.

Lee, Peter. Surgeon. Ratcliffe. at sea.
A man of this name was apprenticed to Thos. Elmore, 1610/11. Freeman, 1618/19.

Lamb, Richard. Surgeon. in Lowckes buildings. in ye King's service in ye North.
Was Warden of the Yeomanry in 1635 and treated the Master in a "scornefull manner."

Langley, . . . Surgeon. Blackefriers. in ye King's service in ye North.
Probably Timothy Langley, apprenticed to Henry Boone, Surgeon, 1631/32. Freeman, 1638/39.

Southwell, Christopher, lieth in St. Christophers.

Soper, John. Surgeon. . . . ne agt. Fetter Lane.
Apprenticed to James Mullins (Molins), 1620/21. Freeman, 1629/30. Mar-

ried in 1632, Joane, near the Bell at St. Andrew Holborn. His son, Popham, was apprenticed to Edward Molins, 18 June, 1666.

Sterman, Samuel. Surgeon. Blackwall.

Tyler, Henry. Surgeon. Ratcliffe.

Perhaps apprenticed to Thos. Symer, 1606/07. Freeman, 1614/15. Fined £5 for letting his man go to sea, his chest not being viewed, 1641.

Tue, Josias. Sea Surgeon. at Limehouse.

Trapham, Thomas. Surgeon. at Salisburye.

I believe this man to be the Thos. Trapham who was apprenticed to John Norton, 1624/25. He embalmed the body of Charles the First after his execution and was Cromwell's physician. He was the son of John Trapham, of Maidstone and had the licence of the University of Oxford to practice surgery, 1633/34. Created M. B., Oxon., 1649. Later in practice at Abingdon. Buried there, 29 Dec. 1683. Vide Proc. Roy. Soc. med., Section History of Medicine. Life by G. C. Peachey.

Turpin, Thomas. Surgeon. at Islington.

Apprenticed to William Wright, Surgeon, 1630/31. Freeman, 1637/38.

Thompson, Walter, Surgeon. at Wapping.

Apprenticed to Robert Griffyn, 1622/23. Freeman, 1633/34.

Tompson, William. Surgeon. at Gravesend.

Perhaps apprenticed to John Norton, 1614/15. Dead in August 1659 when his apprentice, J. Featley, took up his freedom.

Wright, Henry. Surgeon. in Cocklane. at sea.

Perhaps apprenticed to Edward Whiteacres, 1613/14. Freeman, 1620/21 or to Thomas Collins, 1615/16, Freeman, 1622/23.

It will be seen that nine of these surgeons are noted as being on active service in the north, of whom Thomas Collins appears to have been at headquarters at Newcastle. In the spring of the year 1639 Charles had an army of near 6000 horse and about that number on foot, together with a train of artillery and all other necessary provisions on the Scottish border. (Clarendon. *Hist. of the Rebellion.* Book 2.)

There appears to have been very little fighting, but at Newburn the whole army was routed with trifling loss of men.

I am indebted to Young's *Annals of the Barber-Surgeons' Company* for many of the annotations.

AN OUTLINE OF THE ACHIEVEMENTS OF AMERICAN DERMATOLOGY ARRANGED IN CHRONOLOGICAL ORDER

PAUL E. BECHET

The great interest manifested in the exhibit of memorabilia of the early American dermatologists, gathered together by the author from his own collection and those of generous friends, shown in the Section of Dermatology and Syphilology at the Annual Meeting of the American Medical Association at Cleveland, June 2-6, 1941,[1] resulted in a request from Dr. Anthony C. Cippolaro, the Chairman of the Committee on Scientific Exhibit of the American Academy of Dermatology and Syphilology, to exhibit at our last annual meeting, an original presentation on the history of dermatology. After giving the matter some thought, it occurred to the author that the only consideration in coming to a decision as to what form the exhibit should take, would be an exposition illustrating the superlatively brilliant careers of the most prominent of our American dermatologic pioneers, arranged in synopsis form and chronological order, presented on large charts painted by hand.

After the exhibition letters from medical men were received from as far as Hawaii, urging that the material presented be preserved for future reference in a more permanent form. Doctor Henry E. Sigerist who has done so much work as an eminent contributor to medical history, and as editor of the *Bulletin*, was of the same opinion and he kindly accepted the material, despite the fact that it differed entirely from the usual presentation of historical facts, which could not be otherwise however, as the orthodox presentation of the achievements of twenty-five individuals, would require a book and not the usual space allotted an article.

The men mentioned, lived and worked at a time when diagnosis and therapy depended almost entirely on a keenly observant mind, careful and exhaustive physical examinations, clinical notes and the observation of thousands of dermatologic cases, thereby developing a clinical acumen unusual in this day of almost complete dependence on the laboratory, and diagnostic machines. To mention but a few examples: it was on clinical evidence alone that James C. White described keratosis follicularis in 1889, and dermatitis venenata in a text-book of 210 pages on the subject,

[1] Bechet, Paul E.: History of Dermatology. *Bulletin of the History of Medicine*, 10:626 (Nov.) 1941, No. 4.

published in 1887. George Henry Fox reported contact dermatitis as early as 1888. Louis A. Duhring wrote his famous series of papers, about eighteen in all on dermatitis herpetiformis, clarifying for the first time the symptomatology of this now well-known disease. His clinical descriptions are as dependable today as they were when written in 1884. Robert W. Taylor described idiopathic cutaneous atrophy in 1876. James N. Hyde first described synovial lesions in the skin in 1883, and Sigmund Pollitzer was the first to describe acanthosis nigricans (1891), hidradenitis destruens suppurativa (1892), parakeratosis variegata with Unna & Santi (1890).

The author however does not wish to appear indifferent to laboratory investigations, as on the contrary no one could be more appreciative of the help afforded by modern laboratory methods, but he does want to clearly bring out that, dermatologically speaking of course, a large clinical experience still has the edge on histology alone, and that unfortunately the tendency of the dermatologic training of today is to stress laboratory work and look upon immense clinical experience with at least a slightly jaundiced eye. This attitude would be greatly corrected by a deepening interest in medical history, which in turn might convince the younger tyros in our beloved profession that their medical forefathers were not ignorant dusty effigies but live, active, tireless men, just as devoted to the progress of medicine as the youngest member of a research institute. There were no "Arrowsmiths" in the 19th century. All honor therefore to the men of the past who besides working for their "bread and butter" with many times meagre results spent long hours in pouring over voluminous clinical notes, and by past experience, comparison, deduction and reasoning, arrived at conclusions which startled the medical world. To this group belong the subjects of this outline. To them is due, in great part the degree of clarity we now enjoy in the symptomatology, nosology and topography of dermatoses. All of this was accomplished in the face of many difficulties, not the least of which was the contempt with which specialism in medicine was regarded by medical men in the latter half of the nineteenth century. One of the leading dermatologic pioneers in New York who honored the author with his friendship related, as a humorous incident only, that in speaking of him one of the most prominent surgeons of that city stated some sixty years ago that "while he was hell on a pimple, a boil was too much for him." Sir Erasmus Wilson, England's most prominent pioneer in dermatology must have also sensed this same contempt, for he once predicted that the day would come when skin diseases would receive equal recognition from the other specialties. Time

proved him correct, for in America alone, at the present time, full professorships have been given to the specialty in the large majority of our leading medical schools, with post-graduate instruction in dermatology consisting of a three year full-time course. No large hospital in the United States lacks a busy clinic devoted to dermatology and syphilology, which not infrequently is the largest from the standpoint of attendance and floor space in the hospital. There are two hospitals in the United States devoted to dermatology alone, and completely self-contained in all allied branches; one of these, the New York Skin and Cancer Hospital, now the New York Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital, Columbia University has had since the opening of its doors on January 1, 1883, the largest attendance of any dermatological service in America, this attendance is exceeded by only one other institution in the world, L'Hôpital Saint Louis in Paris. America supports two dermatologic journals, one covering the entire dermatologic field, which began publication in 1870, and has never missed a single appearance since that year; the other is limited to dermatologic research.

In dermatology there are at present in the United States four national bodies with an enthusiastic and active membership, six sectional societies, eleven state and twenty local societies. The City of New York alone supports seven of these. The present enviable position of this fascinating specialty proves that the deep devotion to it manifested by our pioneers was not misplaced. I am sure that if they could view their handiwork they would feel well repaid for all the painful toil expended in creating it.

HENRY D. BULKLEY, M. D.

1804–1872

First American Dermatologist.

First to lecture on dermatology in America, Broome Street Infirmary for Diseases of the Skin (1837). Broome Street School of Medicine (1837-40). College of Physicians and Surgeons (1840-1850).

M. D. Yale College (1830). Post-Graduate work under Biett and Cazenave, Saint-Louis Hospital. Translated into English Cazenave and Schedel's Manual (1845). At different times President of the New York Academy of Medicine, the New York County, and New York State Medical Societies. Founder and first president of the New York Dermatological Society.

NOAH WORCESTER, M. D.

1812–1847

Author of the first American text book on dermatology (1845), a clear and scholarly presentation of the dermatologic knowledge of that time.

Professor of general pathology, physical diagnosis, and diseases of the skin. Western Reserve College, Cleveland (1843).

M. D. Dartmouth (1838). Post-graduate work at Saint-Louis Hospital. Practised dermatology both in Cleveland and Cincinnati. Died prematurely of tuberculosis at the age of 35.

JAMES CLARKE WHITE

1833–1916

First Professor of Dermatology in America

(Harvard University, 1871).

M. D. Harvard (1855). Post-graduate work under Hebra, Oppolzer, Skoda, Rokitansky (1856-1857). Founded first dispensary for skin diseases in Boston (1860). Lecturer on Diseases of the Skin, Harvard Medical School (1863). Chairman of the Section of Dermatology and Syphilology of the International Medical Congress (1876). Founder and first president of the American Dermatological Association (1877). First to describe dermatitis venenata and contact dermatitis (1887). First to describe keratosis follicularis (*Journal of Cutaneous and Genito-Urinary Diseases*, June 1889) several months before Darier's report. President of the Sixth International Dermatological Congress (1907).

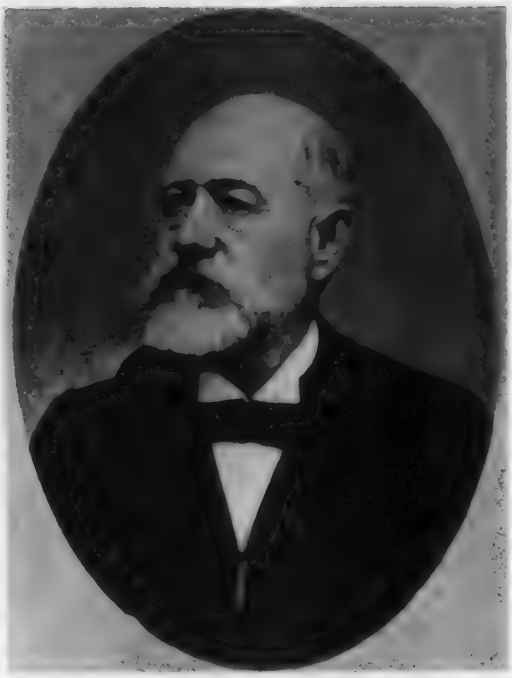
Between 1856 and 1913 contributed 125 medical papers, 50 reviews, 94 editorials and eight books.

JAMES N. HYDE, M. D.

1840–1910

First to practise and teach dermatology in Chicago (Rush Medical College, 1873). First to describe synovial lesions of the skin (1883). First to call attention to the influence of light in the production of skin cancer. (*Am. Jour. Med. Sc.* January 1906), one year before Dubreuil's article. Gave the name of purigo nodularis to a disease previously described by Hardaway as "Multiple Tumors of the Skin Accompanied by Intense Pruritus" (*Arch. of Derm.* 6: 129, 1880).

M. D. University of Pa. (1869). Charter member, first treasurer and twice president of the American Dermatological Association. The first edition of his *Diseases of the Skin* appeared in 1883 and the eighth and last in 1909. Wrote extensively on blastomycosis sporotrichosis and pellagra.



SAMUEL SHERWELL, M. D.

1841–1927

First to use acid nitrate of mercury after curettage in the treatment of cutaneous epitheliomata (*Journal of Cutaneous and Genito-Urinary Dis.* 5:9, 1887). An exceedingly efficient method giving excellent cosmetic results. First dermatologist to practise in Brooklyn. First teacher of dermatology at Long Island Medical College (lecturer 1877, and professor a few years later).

M. D. University and Bellevue Medical College (1868). Post-graduate work under Hebra, Schrotter, Oppolzer and Skoda, in Vienna. Served in Anglo-American Ambulance Corps with Sir William McCormack and Marion Sims in the Franco-Prussian War (1870). Received the military order "Pour le Merite" from the Bavarian Government. Practised dermatology in Brooklyn (1871-1927). President of the American Dermatological Association (1894-1895). President of the New York Dermatological Society 1881 and 1909.

HENRY G. PIFFARD, M. D.

1842–1910

Wrote second American textbook on dermatology (Elementary Treatise on Diseases of the Skin, 1876). First American textbook on dermatotherapy (*Treatise on Materia Medica and Therapeutics of the Skin*, 1881). Pioneer in physiotherapy of the skin. Founder of the New York Dermatological Society (1869), and the American Dermatological Association (1876).

M. D. College of Physicians and Surgeons (1864). Post-graduate work under Dr. Tilbury Fox at the University College Hospital, and also in Paris and Vienna. Translated Hardy's *The Dartrous Diathesis or Eczema and Allied Affections*, 1868. Professor of dermatology New York University (1874).

First to give post-graduate instruction in dermatology in America. (New York University, 1875, and New York Post-Graduate Medical School and Hospital, 1882). According to Andrew R. Robinson he described the tuberculides in 1892 four years before Darier.

ROBERT W. TAYLOR, M. D.

1842–1908

First described idiopathic progressive atrophy. (*Arch. Derm.* 2: 114, 1876). Wrote *Syphilitic Lesions of the Osseous System in Infants and Young Children* (1875), a pioneer and most important contribution to the study of bone syphilis. First professor of dermatology at the University of Vermont.

M. D. College of Physicians and Surgeons (1868). Founder of the New York Dermatological Society and the American Dermatological Association. First vice-president of the latter (1877), and its president in 1882 and 1883. President four times of the New York Dermatological Society 1873, 1874, 1886, 1887. Published a large folio entitled *A Clinical Atlas of Venereal and Skin Diseases* (1889). At different times professor of dermatology at the University of Vermont, New York Post-Graduate Medical School and Hospital, and the College of Physicians and Surgeons.

EDWARD L. KEYES, M. D.

1843–1924

First to invent the cutaneous punch for biopsies. First professor of dermatology at Bellevue Hospital Medical College (1881). First to prove by means of repeated blood counts that mercury in small doses was a tonic. (*Am. Jour. of Med. Sc.* January 1876).

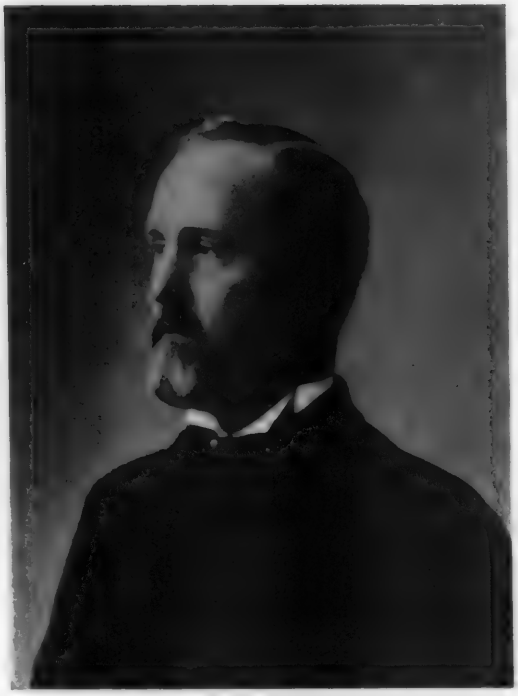
M. D. New York University (1866). Founder of the New York Dermatological Society. Charter Member of the American Dermatological Association. Taught dermatology and genito-urinary diseases, at Woman's Medical College (1871), Bellevue Hospital Medical College (1872). Author of *The Tonic Treatment of Syphilis* (1877). Co-author with W. H. Van Buren of a textbook on genito-urinary diseases and syphilis which remained a classic for many years. Attending dermatologist for many years at the City Hospital and Bellevue Hospital.

LOUIS A. DUHRING, M. D.

1845–1913

First described dermatitis herpetiformis in a series of about eighteen papers between 1884 and 1891. Author of the third American textbook on dermatology entitled *Practical Treatise on Skin Diseases* (1877). It went through three editions and was translated into French, Italian and Russian. Author of the first American atlas on dermatology (1876). First described pruritus hiemalis (*Phil. Med. Times* 4:3, 1873).

M. D. University of Pennsylvania (1867). Post-graduate work in dermatology in Europe for two years. One of Hebra's favorite pupils. Organized first dermatologic clinic in Philadelphia (1870). Lecturer on diseases of the skin at the University of Pennsylvania (1871). Clinical professor (1876). Professor (1890). Founder American Dermatological Association, its first vice-president (1876), and twice president (1878 and 1879). From 1870 to 1909 he contributed approximately seventy-eight articles to dermatologic literature.



ANDREW R. ROBINSON, M. D.

1845–1924

First to describe hydrocystoma (*Jour. Cutan. Dis.* 2: 362, 1884; 11: 293, 1893). Pioneer American histopathologist. First professor of histology and pathologic anatomy at the New York Medical College and Hospital for Women. Founder of the New York Polyclinic Medical School and Hospital and its professor of dermatology for many years. Author *Manual of Dermatology* (1884). Charter member of the American Dermatological Association and its president in 1896.

M. D. University and Bellevue Medical Hospital College (1868). University of Toronto (1869). L. R. C. P. and L. R. C. S. respectively in Edinburgh (1870). President of the Section of Dermatology and Syphilology, Ninth International Medical Congress (1887). First chairman of the Section of Dermatology and Syphilology of the New York Academy of Medicine.

L. DUNCAN BULKLEY, M. D.

1845–1928

Founder of the New York Skin and Cancer Hospital (1883). Founder and first secretary, American Dermatological Association (1876). One of a small group who formed the Section on Cutaneous Medicine and Surgery of the American Medical Association, and its first chairman (1888). First described herpes gestationis (*Amer. Jour. of Obstetrics and Diseases of Women and Children* 6:1, Feb. 1874) which later proved to be a variant of dermatitis herpetiformis occurring in pregnant women.

M. D. College of Physicians and Surgeons (1869). Author of six or eight textbooks, mostly devoted to dermatotherapy. An outstanding one was his *Syphilis in the Innocent*, with a complete bibliography. It won the Alvarenga Prize of the College of Physicians of Philadelphia (1891).

ARTHUR VAN HARLINGEN, M. D.

1845–1936

Founder and Professor of Dermatology, Philadelphia Polyclinic (1885). Founder of the American Dermatological Association: its secretary (1879-1883), Vice-President (1883-1885), President (1906).

M. D. University of Pennsylvania (1867). Chief of Clinic in Duhring's service at the University of Pennsylvania (1871-1885). Instructor and later professor, Philadelphia Polyclinic (1885-1912). Secretary of the Section of Dermatology and Syphilology of the International Medical Congress, Philadelphia (1876). Author *Handbook of the Diagnosis and Treatment of Skin Diseases* (1884). It ran through four editions within a few years.

GEORGE H. FOX, M. D.

1846–1937

First to use photography in the illustration of diseases of the skin (1880). First to describe a chronic, itching, papular eruption of the axillae and pubes (Fox-Fordyce disease). *Jour. of Cutaneous and Genito-Urinary Diseases* 20: 1, 1902. The clinical observations were done entirely by him. Fordyce did only the histology. Match box dermatitis was described in 1888. Probably the earliest report of a contact dermatitis.

M. D. University of Pennsylvania (1869). Post-graduate work in Europe for three years under Virchow in Berlin, Hebra, Neumann, Schroetter and Stoerk in Vienna, Bazin, Hardy and Vidal in Paris, Tilbury Fox and Hutchinson in London. Founder (1876), president (1892), and honorary president (1926) of the American Dermatological Association. At different times, between 1875 and 1907, served as professor of dermatology at the Women's Medical College of the New York Infirmary, Starling Medical College, Columbus, Ohio, Post-Graduate Medical School and Hospital, New York, College of Physicians and Surgeons, New York.

Author *Photographic Illustrations of Skin Diseases* (1880). *Skin Diseases in Children* (1897). *Reminiscences* (1926). President, Medical Society of the County of New York (1891). President, Medical Society of the State of New York (1894). President four times of the New York Dermatological Society.

PRINCE A. MORROW, M. D.

1846–1913

An American pioneer in the prophylaxis of syphilis and the study of leprosy. Founder of the Society of Sanitary and Moral Prophylaxis (1905) and its President until his death in 1913.

M. D. New York University and Bellevue Medical Hospital College (1873). Translated and edited Fournier's *Syphilis and Marriage* (1880), the inspiration for his admirable work in venereal prophylaxis. Author of *Drug Eruptions* (1887), *An Atlas of Skin and Venereal Diseases* (1888-1889), *A System of Genito-urinary Diseases, Syphilography and Dermatology*, Three volumes (1892-1894), *Leprosy* (1880), *Social Diseases and Marriage* (1904). Co-editor of the *Journal of Cutaneous Diseases* for nine years, first with Piffard and then with Fordyce. President of the American Dermatological Association (1900-1901). New York Dermatological Society (1883). Lecturer in Dermatology, New York University (1882-1883). Clinical professor from 1886 to 1890. Founder and Editor of *Social Diseases*.

WILLIAM A. HARDAWAY, M. D.

1850–1923

First introduced electrolysis in dermatology (1877) but credited Charles E. Michel of St. Louis for its use in "wild hairs" of the lids (1875). First described prurigo nodularis under the title of "Multiple Tumors of the Skin Accompanied by Intense Pruritus (*Arch. of Derm.* 6: 129, 1880).

M. D. Missouri Medical College (1870). Charter member of the American Dermatological Association, President (1884-1885). Author of *Essentials of Vaccination* (1882), *Manual of Skin Diseases* (1890), *Handbook of Cutaneous Therapeutics* in collaboration with Joseph Grindon (1907). Contributed numerous chapters on dermatology to encyclopedic works on medicine. Taught dermatology at Missouri Medical College and later at the Medical Department of Washington University for about thirty-five years. Published eighty-one papers on dermatology within a period of forty years.

AUGUSTUS RAVOGLI, M. D.

1851–1934

A pioneer in dermatology in Cincinnati.

M. D. University of Rome (1873). Came to Cincinnati in 1882. Lecturer in dermatology, Miami Medical College (1882-1888). Professor of dermatology, Ohio Medical College (1889-1894). Professor of dermatology, University of Cincinnati (1894-1916). For many years attending dermatologist to the Cincinnati General Hospital. Helped to found the Section of Dermatology and Syphilology of the American Medical Association in 1887, and was its host in Cincinnati at its first meeting May 8, 1888, and its chairman in 1897. President of the American Dermatological Association (1916-1917). His best known work entitled *Syphilis in its Medical, Medico-Legal and Sociological Aspects* (1907), was a most valuable contribution to the subject. Author of over one hundred and ten articles in American and foreign journals.

HENRY W. STELWAGON, M. D.

1853–1919

Author of *A Treatise on Diseases of the Skin* (1902). It maintained its supremacy as the most authoritative textbook in the English language for many years. Nine editions appeared between 1902 and 1919.

M. D. University of Pennsylvania (1875). Instructor in dermatology, University of Pennsylvania and Duhring's chief of clinic at the University Hospital (1885-1890). Clinical professor, Women's Medical College of Pennsylvania (1888-1890). Professor, Jefferson Medical College (1890-1918). Author of *Essentials of Diseases of the Skin* (1890), a quiz-compend published by Saunders which went through innumerable editions. Contributed to various medical journals many valued dermatologic articles.

JOHN T. BOWEN, M. D.

1857–1940

First described the precancerous dermatoses (*Jour. of Cut. Dis.* 30: 241, 1912 and 33: 787, 1915). An expert histopathologist, he published "The Epitrichial Layer of the Human Epidermis" (*Anat. Anz.*, Jena 4: 412, 1889).

M. D. Harvard Medical School (1884). Post-graduate work in Berlin, Munich and Vienna for three years. Assistant physician in the out-patient department for skin diseases at the Massachusetts General Hospital (1889-1895), physician (1895 to 1914). Instructor in dermatology at the Harvard Medical School (1896-1902), assistant professor (1902-1907), professor (1907 to 1911). Founder of the Boston Dermatologic Club which later expanded into the New England Dermatological Society.

JOHN A. FORDYCE, M. D.

1858–1925

First described pseudo-colloid of the lips (Fordyce's Disease) under the following title "A Peculiar Affection of the Mucous Membrane of the Lips and Oral Cavity" (*Jour. Cutan. Dis.* 14: 413, 1896). Did the histopathology in the first cases of George Henry Fox's "Chronic, Itching, Papular Eruption of the Axillae and Pubes," Fox-Fordyce disease (*Jour. of Cutan. and Genito-Urinary Diseases* 20: 1, 1902). Pioneer in the modern treatment of syphilis. Author of "Infectious Exzematoid dermatitis," "Influences of Anaphylaxis Reactions." (*Jour. Cutan. Dis.* 29: 129, 1911) Probably the earliest exposition of allergy in relation to the skin.

M. D. Northwestern University Medical College of Chicago (1881). University of Berlin (1888). Professor of dermatology New York University and Bellevue Medical Hospital College (1893-1912). Professor of dermatology and syphilology, College of Physicians and Surgeons, Columbia University (1912-1925). Visiting dermatologist, City Hospital (1893-1925). Editor of the *Journal of Cutaneous and Genito-Urinary Diseases* (1889-1897). President of the American Dermatological Association (1899). Secretary-General, Sixth International Dermatological Congress (1907). A lucid and prolific writer, a hundred or more articles particularly on syphilis and the histopathology of varied dermatoses flowed from his pen.

JOSEPH ZEISLER, M. D.

1858–1919

A pioneer in dermatology in Chicago.

M. D. University of Vienna (1882). Came to Chicago in 1884, after several years of work with Kaposi, at the Vienna General Hospital. Professor of skin and venereal diseases at the Post-Graduate Medical School, Chicago (1888-1889). Professor of dermatology, Northwestern University (1889-1917). Chairman of the Section of dermatology and Syphilology, American Medical Association (1912). President, American Dermatological Association (1903). Twice president of the Chicago Dermatological Society. Contributed some thirty-six valuable articles to dermatologic literature.

SIGMUND POLLITZER, M. D.

1859–1937

First to describe acanthosis nigricans (*International Atlas for Rare Skin Diseases*, 1891, Plate 10.) First to describe hydradenitis destruens suppurativa (*Jour. of Cutan. Dis.* 10:9, 1892). Reported first case of rhinoscleroma cured with the X-rays: "Rhinoscleroma Cured by X-ray" (*Jour. Cutan. Dis.* 28: 338, 1910). First described parakeratosis variegata with Unna and Santi (*Monatschr.* 10:404, 1890). "Salvarsan and Syphilis" (1911) and "Serum Therapy and Serum Diagnosis in Syphilis" (1907) were two pioneer articles dealing with the modern concept of syphilis.

M. D. College of Physicians and Surgeons (1884). Professor of dermatology at the New York Post-Graduate Medical School and Hospital (1895-1915). Translated and edited Darier's textbook of dermatology (1920). Vice-President (1913), President (1914) of the American Dermatological Association, and one of its most active members for forty-one years. One of the founders and devoted member of the Section on Dermatology and Syphilology of the New York Academy of Medicine. Author of seventy-one contributions to dermatologic literature.

T. CASPAR GILCHRIST, M. D.

1862–1927

First described blastomycosis before the American Dermatological Association in Washington (June 1894) under the following title "A Case of Blastomycetic Dermatitis in Man" (*Johns Hopkins Hosp. Rep.* 1: 269, 1896).

M. R. C. S., L. S. A. (England, 1899) Honorary M. D. University of Md. (1907). Chief of clinic department of dermatology, Johns Hopkins Hospital (1890). Clinical professor of dermatology, Johns Hopkins University School of Medicine (1897-1927). President of the American Dermatological Association (1909). An enormous amount of research work in dermatology was done at Johns Hopkins Hospital under his direction. Besides blastomycosis the most important were studies of the acne bacillus (*Johns Hopkins Hosp. Rep.* 9: 420, 1905), pemphigus (*Trans. Am. Dermat. Ass'n.* 1899, p. 96), mast cells (*Johns Hopkins Hosp. Bull.* 7: 140, 1896), urticaria factitia (*Jour. of Cutan. Dis.* 23: 122, 1908). Author *Outlines of Common Skin Diseases Including Eruptive Fevers* (1927).

FRANK H. MONTGOMERY, M. D.

1862–1908

Associate professor of dermatology, Rush Medical College (1890-1908). Associate of James N. Hyde from 1892 to his premature death in 1908.

M. D. Rush Medical College (1888). An indefatigable worker, many articles were published under the famous team name of Hyde and Montgomery. Several editions of the textbook appeared under both names. Many articles were published alone and much original work on blastomycosis was done. Admitted to membership in the American Dermatological Association in 1897. Served as secretary (1899-1902), vice-president (1904-1905). President of the Chicago Dermatological Society and one of its most active members.

WILLIAM A. PUSEY, M. D.

1865–1940

First to introduce the use of carbon dioxide snow in the treatment of certain skin diseases (*Jour. A. M. A.* 49: 1354, Oct. 19, 1907). First to use roentgenotherapy in diseases of the skin (*Jour. Cutan. Dis.* 18: 302, July 1900). Author of the following "land marks" in dermatology: *The Principles and Practice of Dermatology* (1907), *Roentgen Rays in Therapeutics and Diagnosis* (1903), *The History of Dermatology* (1932), *The History and Epidemiology of Syphilis* (1933).

M. D. New York University (1888). Professor of dermatology, College of Physicians and Surgeons, Chicago 1894, and after its affiliation with the University of Illinois occupied the chair of dermatology until 1915. Attending dermatologist, Cook County Hospital (1895-1915). Editor of the *Archives of Dermatology and Syphilology* (1920-1936). President, American Medical Association (1923). President, American Dermatological Association (1910). President three times of the Chicago Dermatological Society. President, Chicago Medical Society (1918). Author of approximately 115 monographs and nine books on the history, science, and philosophy of medicine, and cutaneous medicine.

JAY F. SCHAMBERG, M. D.

1870–1934

First described progressive pigmentary dermatosis (*British Jour. of Dermatology* 13: 1, 1901). First described Acaro-dermatitis urticaroides (Govt. Printing Office, 1909; *Jour. Cutan. Dis.* 28: 67, 1910), in collaboration with Goldberger. Supplied the Western Hemisphere with arsphenamine by working out a process for its manufacture with the collaboration of Raiziss and Kolmer during the World War. Introduced aurotherapy in the United States in the treatment of lupus erythematosus, with the collaboration of Wright (*Arch. Derm. & Syph.* 15: 119, Feb. 1927).

M. D. University of Pennsylvania (1893). At various times professor of dermatology, Temple Medical School, Jefferson Medical School and the Philadelphia Polyclinic. Author of *A Compend of Diseases of the Skin* (1898), *Diseases of the Skin and Eruptive Fevers* (1908), *Treatment of Syphilis with C. S. Wright* (1932). President of the American Dermatological Association (1920). President, Philadelphia County Medical Society (1931). Member of the editorial board of the *Archives of Dermatology and Syphilology* (1927-1934). Of many carefully written monographs the best remembered will be his researches on the etiology of psoriasis (*Jour. of Cutan. Dis.* 31: 697 and 802, 1913; 33: 819, 1915; 33: 1 and 98, 1915; *Jour. A. M. A.* 63: 729, 1914).

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IMPERIALI, GIOVANNI (1602-54): Musaeum historicum et physicum . . . *Venetiis, Apud Juntas*, 1640. *1st ed.* 2 v. in 1. 21 cm. engr. t. p.

ISIDORE, BISHOP OF SEVILLE (c. 570-636 A. D.): Isidorus ethimologiarum idem de summo bono. *Venetiis per Bonetum Locatellum*, 1493. 77 p. woodcuts 32 cm.

JACKSON, C. M.: Pioneers in Embryology. *A. M. A. Journal*, Vol. 76, No. 8. Pp. 497-500.

JACKSON, JAMES: Letters to a young physician just entering upon practice. *3rd ed. Boston, Phillips, Sampson & Co.* 1855.

JACOBI, JOHANNES: A litil boke the whiche traytied and reherced many gode thinges necessaries for the . . . Pestilence . . . made by the . . . Bisshop of Arusiens . . . (*London*, 1485?). Reproduced in Facsimile. With an Introduction by G. Vine, 4to, boards. 1910.

JACOBS, J.: Ecole pratique des accouchemens. *Gand, J. F. Vander Schueren*, 428 p. plates 25½ cm.

JEAFFRESON, J.: A book about doctors. *New York, Carleton*, 1875.

JEANSELME, DR. E.: Early Treatment of Syphilis in France. *Medical Pickwick*, May, 1921. Pp. 169-171.

JENNER, EDWARD (1749-1823): An inquiry into the causes and effects of the variolae vaccinae. *2nd ed.. London, Sampson Low*, 1800, 183 p. plates 26½ cm.

JENNINGS, SAMUEL K.: Married Ladies Companion, or Poor Man's Friend, *Richmond, Va., T. Nicholson.*

JOHNSON, CHARLES B.: John Hunter. *Medical Pickwick*, May, 1920. Pp. 83-88.

JOHNSON, CLYDE B.: The Medical Profession from a Layman's Point of View. *West Virginia Medical Journal*, June, 1924. Pp. 307-316.

JOHNSON, ROBERT WALLACE: A new system of midwifery, in four parts. *London, Printed for the author and sold by D. Wilson & G. Nicol*, 1769. 440 p. plates 30 cm.

JOHNSTONE, JOHN: An Harveian oration and other remains. *London, William Nicol*, 1837.

JOUBERT, LAURENT (1529-83): La première et seconde partie des erreurs populaires, touchant la médecine et le régime de santé. *Sold at Paris, by C. Micard, printed by George L'Oyselet at Rouen*, 1587. 227 p. 16 cm.

KEEN, WILLIAM WILLIAMS: Addresses and other papers. *Phila., W. B. Saunders & Co.*, 1905.

———: Medical research and human welfare. *Boston, Houghton Mifflin Co.*, (c. 1917).

———: Selected papers and addresses.

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Phila., Geo. W. Jacobs & Co. (c. 1923)

KEILL, JAMES (1673-1719): The anatomy of the human body, abridged. *3rd ed. London, J. B. for R. Smith,* 1708. 335 p. 15½ cm.

KEITH, ARTHUR: What John Hunter Did for Medicine. *British Medical Journal,* Oct. 18, 1919. Pp. 485-487.

KEMPER, G.: The world's anatomists. *Phila., P. Blakiston's sons,* 1905.

KENNEDY, EVORY: Observations on obstetric auscultation with an analysis of the evidences of pregnancy. *New York, J. & H. G. Langley,* 1843. 311 p. illus. 19 cm.

KERCKRING, THEODOR (1640-93): . . . Opera omnia anatomica . . . *Lugduni Batavorum, Corn. Boutesteyn,* 1717. 303 p. engr. t. p. & plates 23½ cm.

KETHAM, JOHN OF: The Fasciculo di Medicina, Venice, 1493. With an introduction etc. by Charles Singer. *Florence, R. Lier & co.* 1925.

KIERNAN, JAMES G.: An Eighteenth Century Female Osteopath. *Medical Pickwick,* Jan., 1921. Pp. 24-25.

———: The Physician as a Revolutionist—Akenside, Bartlett, Marat, Rush, Thornton. *Medical Pickwick,* 1918-1919. Pp. 443-446, 83-88.

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KILLPATRICK, J.: Facsimile: A Full and Clear Reply to Doctor Thomas Dale. *Charlestown, printed by Peter Timothy,* 1739.

KING, JOHN (of S. Carolina): An analysis of the subject of extrauterine foetation. *London, printed and sold by G. Wright,* 1818. 176 p. 22½ cm.

KIPLING, RUDYARD: Doctors. *London, Macmillan & Co.,* 1908.

KIRCHER, ATHANASIUS (1602-80): . . . Scrutinium physico-medicum contagiosae luis, quae dicitur pestis. *2nd ed. Lipsiae apud Haered. Schureri & Gotzi,* 1659. 427 p. 13½ cm.

KNOTT, JOHN: Spontaneous Combustion. *New York Medical Journal,* April 17, 1909. Pp. 782-848.

The Knowledge of Chemistry in Antiquity. Translated from the French. *Appleton's Journal,* Sept. 25, 1869. Pp. 177-178.

KNOWLING, PROF. R. J.: The Medical Language of St. Luke. *Biblical World,* Oct.-Nov., 1902. Pp. 260-379.

KRAPF, KARLS VON: Anatomische Versuche und Anmerkungen über die eingebildete Erweiterung der Beckenhöhle, *Wien, Ehelenschen,* 1780. 161 p. 17 cm.

KROHN, HENRY (1736-1816): Foetus extra uterum historia cum tabulis. *Londini, Gulielmus Bulmer,* 1791. 10 p. engr. 39½ cm.

LACTANTIUS, L. C. FIRMIANUS (d. c. 325): Opera. *Venetiis, Joannes de Tridino,* 1521. 160 p. 31½ cm.

LAENNEC, MERIADEC (cousin of R. T. H. Laennec): A manual of percussion and auscultation. Composed from the French . . . by James Birch Sharpe. *London, Printed for S. Highley,* 1832. 120 p. 15 cm.

LAENNEC, RENÉ-THÉOPHILE-HYACINTHE (1781-1826): Traité de l'auscultation médiate et des maladies des poumons et du coeur. *Paris, J. S. Chaudé,* 1826. *2nd ed.* 2 v. 20½ cm.

LAMB, D. S.: The Army Medical Museum, Washington, D. C. *The Military Surgeon,* August, 1923, pp. 89-140.

DE LA MOTTE, GUILLAUME-MAUQUEST (1665-1737): A general treatise of midwifery . . . Trans. into English by Thomas Tomkyns . . . *London, printed for Jas. Waugh,* 1746. xx 536 p. 20 cm.

———: Traité complet des accouchemens naturels, non naturels et contre

nature. *Paris, Laurent d'Houry*, 1721. xxviii 928 p. 25 cm.

LAMZWEERDE, JOHANN BAPTISTA VAN (fl. 1657-83): Historia naturalis molarum uteri . . . *Lugduni Batavorum, Petrus vander A.* 1686. 341 p. fronts. 16 cm.

LANCISI, GIOVANNI MARIA (1654-1720): . . . De motu cordis et aneurysmatibus opus posthumum . . . *1st ed. Romae, Joannes Maria Salvioni*, 1728. viii, 160 p. engr. fronts. (port.) & plates 37 cm.

———: De noxiis paludum effluviis, eorumque remediis . . . Libri duo. *Romae, J. Maria Salvioni*, 1717. 479 p. engr. t. p. & plates 23½ cm.

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LANGHAM, WILLIAM: The garden of health, *London*, 1579. *1st ed.* 702 p. table 17½ cm.

LANGNER, ANDREAS, VON MAGDEBURG: Wie zur Zeit der Pestilentz ein jeder Gesunder und Kranker sich praeservieren und curieren soll. *Leipzig, Jacob Berwaldts Erben*, 1576. woodcuts, 18½ cm.

DE LA PEYRONIE, FRANÇOIS-GIGOT (fl. 1743): Mémoires de l'académie royale de chirurgie. *Paris, Charles Osmont*, 1743. 2 v. engr. fronts. & plates 25½ cm.

Last Moments of an English King. *Household Words*, Vol. 9, No. 12, 1854. Pp. 277-280.

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LATHAM, P.: The Harveian oration delivered before the Royal College of Physicians, London, Oct. 18, 1888. *Cambridge, Deighton, Bell & Co.*, 1888.

LA TORRE, FELICE: L'utero attraverso i secoli . . . *Castello, Unione Arti Grafiche*, 1917. 831 p. plates illus. 25 cm.

LAUKHARD, F. C.: Prussian Field Hospitals in the 18th Century. *The Military Surgeon*, March, 1923, pp. 273-279.

LAUVERJAT: Examen d'une brochure qui a pour titre; procès-verbaux et réflexions . . . *Amsterdam*, 1779. 83 p. 18½ cm.

LAVATER, JOHANN CASPAR (1741-1801): Essays on physiognomy for the promotion of the knowledge and the love of mankind. Translated into English by Thomas Holcroft. *London, G. G. J. & J. Robinson*, 1789. 3 v. illus. 25 cm.

LAVOISIER, ANTOINE LAURENT (1743-94): Essays physical and chemical. Tr. from the French by Thomas Henry. *London, Joseph Johnson*, 1776. 475 p. plates 21 cm.

LAWRENCE, W.: The Hunterian oration, delivered at the Royal College of Surgeons on the 14th of Feb. 1834. *London, J. Churchill*, 1834.

LEAKE, JOHN: Practical observations on the child-bed fever. *2nd ed. London, R. Baldwin*, 1774. 393 p. 20½ cm. (Bound with Nath. Hulme; Treatise on Puerperal Fever, *London*, 1772).

LE BAS, JEAN: Précis de doctrine sur l'art d'accoucher. *Paris, Prevost*, 1780. 246 p. plates 17 cm.

LE BRETON, CHARLES: La médecine statique de Sanctorius. *Paris, Claude Jombert*, 1722. 219 p. 13 cm.

LE CLERC, CHARLES-GABRIEL: Compleat surgeon, containing an exact and compleat treatise of osteology . . . English'd from the French. *London, printed by Tho. Hodgkin, etc.*, 1710. 342 p. 15½ cm.

LE DRAN, HENRY-FRANÇOIS: The oper-

ations in surgery of Mons. Le Dran, tr. by Thomas Gataker. *London, printed for C. Hitch. etc.* 1749. 473 p. plates 20 cm.

LEE, ARTHUR (1740-92): Experiments on the Peruvian Bark, 1766. 10 p. 22½ cm. (*Extracted from the Proceedings of the Royal Society's Philosophical Transactions for* 1766.)

LEEUWENHOEK, ANTONIUS (1632-1723): Epistolae physiologicae. *Delphis, Adrianus Beman*, 1719. 446 p. engr. fronts. & plates 19½ cm.

LEGGE, THOMAS M.: Charles Turner Thackrah—A Pioneer in Industrial Hygiene. *The Journal of Industrial Hygiene*, Vol. 1, No. 10. Pp. 578-581.

———: Industrial Diseases Under the Mediaeval Trade Guilds. *The Journal of Industrial Hygiene*, 1920, Vol. 1, No. 10. Pp. 475-483.

———: The Spirit of Work Under the Craft Guilds of the Middle Ages. *The Journal of Industrial Hygiene*, Vol. 1, No. 10. Pp. 550-555.

LE GALLIENNE, RICHARD: Perdita's Simple Cupboard. *Harper's*, Oct., 1902. Pp. 739-743.

LEIGH, JOHN (fl. 1760-90): An experimental inquiry into the properties of opium and its effects on living subjects. *Edinburgh, Chas. Elliot, & G. G. J.*, 1786. 144 p. 20 cm.

LEMERY, NICHOLAS (1645-1715): A course of chymistry. *2nd ed. London, R. N. for Walter Kettilby*, 1686. 548 p. 19 cm.

LEMNIUS, LAEVINUS (1505-68): The secret miracles of nature: in four books . . . *London, Jo. Streater, etc.*, 1658. 398 p. 27½ cm.

LENOIR, ADOLPHE: Atlas de l'art des accouchements. *Paris, Victor Masson et Fils*, (*n. d.*) lithographic plates 27 cm.

LEROY, ALPHONSE: Observations et réflexions sur l'opération de la symphyse et les accouchemens laborieux. *Paris, Leclerc*, 1780. viii 55 p. 19½ cm.

———: Recherches historiques et pratiques sur la section de la symphyse du pubis. *Paris, Le Clerc*, 1778. 128 p. 20½ cm.

LETTSOM, JOHN COAKLEY (1744-1815): Hints designed to promote beneficence, temperance, and medical science. *London, J. Manman*, 1801. 3 v. engr. plates silhouettes 21 cm.

———: Memoirs of John Fothergill. *4th ed. London, C. Dilly*, 1786. 272 p. engr. port. 21 cm.

——: The naturalist's and traveller's companion. *3rd ed. London, C. Dilly*, 1799. 215 p. engr. 21½ cm. (Benj. Rush's copy).

LEVRET, ANDRÉ (1703-80): L'art des accouchemens démontré par des principes de physique et de méchanique. *2nd ed. Paris, P. A. Le Prieur*, 1761. xvi 466 p. fronts. plates 19½ cm.

———: Observations sur les causes et les accidens de plusieurs accouchemens laborieux, *2nd ed. Paris, Delaguette*, 1750. 170 p. 19½ cm. (Bound with: Suite des observations sur les causes et les accidens de plusieurs accouchemens laborieux . . . 1751. 427 p. plates).

LIBAVIUS, ANDREAS (1546-1616): Syntagma selectorum undiquaque et perspicue traditorum alchymiae arcanorum . . . *Francofurti, Nicolaus Hoffmannus*, 1611. 32½ cm.

A Library at the Esopus in 1665. *Olde Ulster*, Dec., 1905. Pp. 368-370.

LICETI, FORTUNIO (1577-1657): . . . De perfecta constitutione hominis in utero . . . *Patavii, Petrus Bertellius*, 1616. 120 p. 19 cm.

DE LIGNAC: De l'homme et de la femme, considerés physiquement dans l'état

du mariage. *Lille, J. B. Henry*, 1772. plates 16½ cm.

LIND, JAMES (1716-94): A treatise on the scurvy in three parts . . . *3rd ed. London, S. Crowder etc.*, 1772. xiv 560 p. 20 cm.

DE LINT, J.: Atlas van de geschiedenis der geneeskunde. *Amsterdam, S. L. Van Looy*, 1925. 96 p. illus. 32 cm.

LIZARS, JOHN (1783-1860): A system of anatomical plates of the human body. *Edinburgh, W. H. Lizars, etc.* (*n. d.*) 101 p. engr. plates 46 cm.

L'OBEL, MATTHIAS DE (LOBELIUS) (1538-1616) and Pena, Petrus: Stirpium adversaria nova. *Londini*, 1570-1. 458 p. engr. t. p. woodcuts 29½ cm.

LODER, JUSTUS CHRISTIANUS: Synchondroseos ossium pubis, sectionem in partu difficili instituendam demus extendit. *Gottingae, Jo. Christian Dieterich*, 1778. 58 p. 20 cm.

LOM, JOOST VAN (1500-63): The medicinal observations of Jodocus Lommius in three books, rendered into Eng. *London, Printed for W. Owen*, 1747. xxiv, 244 p. 17 cm.

LOPEZ, JOHN S.: The Lot of a Leper. *Van Norden Mag.*, Nov., 1908. Pp. 208-213.

LORRY, ANNE CHARLES (1726-83): Tractatus de morbis cutaneis. *Parisiis, P. Guillelmus Cavelier*, 1777. xvi, 708 p. 25½ cm.

LOUIS, PIERRE CHARLES ALEXANDRE (1787-1872): Pathological researches on phthisis . . . Trans. from the French by Chas. Cowan . . . *London, Edw. Portwine, etc.* 1835. 388 p. 21 cm.

———: Recherches anatomico-pathologiques sur la phthisie. *Paris, Gabon et Cie*, 1825. 560 p. 20 cm.

LOWE, PETER (1550-1612): A discourse of the whole art of chyrurgerie. *London, Thos. Purfoot*, 1634. 447 p. woodcuts 17 cm. (Oldest Scottish med. book, 1st title page & 2 woodcuts missing.) (contains also: The presages of divine Hippocrates . . . Collected & trans. by Peter Lowe.)

LOWER, RICHARD (1631-90): Tractatus de corde item de motu & colore sanguinis et chyli in eum transitu. *Londini, J. Redmayne, etc.* 1670. 239 p. engr. plates 17 cm.

LOWNDES, FRANCIS: Observations on Medical Electricity. *London, Printed by D. Stuart*, 1787. 51 p. 23 cm.

LUSK, GRAHAM: Some Influences of French Science in Medicine. *Journal of A. M. A.*, Vol. 76, No. 1. Pp. 1-8.

LYNCH, BERNARD: A guide to health through the various stages of life. *London, Printed for the author*, 1744. 480 p. 20 cm.

MCCLURG, JAMES: Experiments upon the human bile: and reflections on the biliary secretion, with an Introductory Essay. *Printed for T. Cadell, in the Strand, London*, 1772.

MACCORMAC, SIR WILLIAM: The Hunterian oration delivered on Tuesday, February 14, 1889, at the Royal College of Surgeons of England. *London, Smith, Elder & Co.* 1899.

MACKENZIE, JAMES: The history of health and the art of preserving it. *2nd ed. Edinburgh, Wm. Gordon*, 1759. 436 p. 19½ cm.

MCMATH, JAMES: The expert midwife: A treatise of the diseases of women with child and in child-bed, *Edinburgh, George Mosman*, 1694. 394 p. 14 cm.

MCMURTRY, LEWIS S.: The Birth of Scientific Surgery. *Medical Pickwick*, Jan., 1918. Pp. 22-27.

———: Ephraim McDowell. *N. Y. Medical Journal*, Vol. LXXXIX, No. 19. Pp. 933-936.

MACNISH, ROBERT (1802-37): The anatomy of drunkenness . . . *5th ed.*

Glasgow, W. R. M'Phun, 1834. 270 p. 18 cm.

McOUAT, M. E.: American Doctors Solve the Mystery of Pellagra. *The Forecast*, Feb., 1916. Pp. 99-105.

MAGNI, PIETRO PAULO: Discorsi . . . sopra il modo di sanguinare. *Rome, Barth. Bonfadino 1586.* 118 p. engr. t. p. & plates 21½ cm.

MAJOR, JOHANN DANIEL (1634-93): Chirurgia infusoria . . . *Kiloni, Joh. Ludervvald*, 1667. 328 p. woodcut 19 cm.

MALPIGHI, MARCELLO (1628-94): Opera posthuma, figuris aeneis illustrata. *Londini, A. & J. Churchill*, 1697. fronts. plates 35½ cm.

MANARDUS, JOANNES (1462-1536): Epistolarum medicinalium libri XX. . . . *Lugduni, ex off. Godefridi & Marcelli Beringorum fratrum*, 1549. 654 p. 18½ cm.

MANGET, JEAN JACQUES (1652-1742): Bibliotheca scriptorum medicorum, veterum et recentiorum. *Genevae, Perachon & Cramer*, 1731. 2 v. engr. fronts. (port.) 37½ cm.

MANLIUS, JOHANNES JACOBUS, DE BOSCO (15th cen.): Liber perutilis, qui luminare maius dicitur . . . *Lugduni, Johannes Moylin*, 1515. 23½ cm.

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MARAT, JEAN PAUL (1743-93): Découvertes de M. Marat . . . sur la lumière. *A Londres, Jombert*, 1780. 141 p. 23½ cm.

MARINELLO, GIOVANNI: Le medicine partenenti alle infermita . . . *1st ed. Venetia, Franceschi Senese*, 1563. 259 p. 14½ cm.

———: Les maladies des femmes et remèdes d'ycelles . . . *Paris, I. Berjon*, 1609. 863 p. 17½ cm.

MARSHALL, CLARA: The Woman's Medical College of Pennsylvania. An historical outline. *Phila., P. Blakiston, Son & Co.* 1897.

MARSHALL, JOHN: The Hunterian oration. Delivered at the Royal College of Surgeons of England, 14th Feb., 1885. *London, Smith, Elder, & Co.*, 1885.

MARTIN, FRANKLIN H.: South America from a surgeon's point of view. *New York, Fleming H. Revell Co.*, 1922.

MASIERO, FILIPPO: Opere chirurgiche in tre parti. *Padova, Giovanni Manfre*, 1724. 737 p. engr. plates 23½ cm.

MASSIE, THOMAS: An Experimental Enquiry into the Properties of the Polygala Senega. Inaugural Thesis at University of Pennsylvania. *Printed by Eaken & Mecum*, 1803.

MATTIOLI, PIETRO ANDREA (1500-77): I discorsi . . . nelli sei libri di Pedacio Dioscoride. *Venetia, Vincenzo Valgrisi*, 1568. 2 v. woodcuts 34 cm.

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Epilepsia, 1774; Robert Walker (Petersburg), *De Cynanche Maligna*, 1787; David Walker, *De Inflammatione*, 1796; Theodoricus Bland, *De Coctione Alimentorum in Ventriculo*, 1763.

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———: A treatise on the management of pregnant and lying-in women . . . *First Worcester ed., Worcester, Mass. Isaiah Thomas*, 1793. 328 p. 21½ cm.

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Guillaume Desprez et Jean Desessartz, 1732. xxx 740 p. engr. plates 25½ cm.

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MEDICO-HISTORICAL NEWS AND ACTIVITIES

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

The Annual Meeting will be held on May 26-27, 1946 at the Hotel Claridge, Atlantic City, N. J. There will be a meeting of the Council at 3 p. m., Sunday, May 26, to which all members of the Association are cordially invited. On Monday, May 27, there will be morning and afternoon sessions, including the Garrison Lecture, a symposium commemorating the 200th anniversary of the birth of Benjamin Rush, and miscellaneous papers. The annual dinner will be held at the Claridge in the evening. *Members who wish to present papers are asked to communicate with the secretary*, Dr. W. B. McDaniel, 2d, 19 S. 22d Street, Philadelphia 3, Pa., *before April 15.*

Room reservations should be made as soon as possible and the requests sent directly to the Hotel Claridge, Atlantic City, N. J.

CONSTITUENT SOCIETIES

The New York Society of Medical History, New York

On March 20, 1946 the Section of Historical and Cultural Medicine of the New York Academy of Medicine and The New York Society of Medical History met jointly at a dinner meeting at the Academy. Dr. John F. Fulton, Stirling Professor of Physiology of Yale University, who has just completed a biography of Dr. Harvey Cushing, was the principal speaker of the evening, discussing the life of Cushing.

NATIONAL NEWS

Boston, Mass.

This year marks the 100th anniversary of William T. G. Morton's successful demonstration of ether anesthesia at the Massachusetts General Hospital. Plans are being made to commemorate the event with a symposium on October 14-16 and a dinner on October 14, 1946.

NEWS FROM ABROAD

Peru

At the meeting of the Sociedad Peruana de Historia de la Medicina on December 11, 1945 Dr. Oscar Soto gave an address on "Roentgen and His Work." Dr. Soto's paper, together with a Spanish translation of Roentgen's original communication to the Society of Physics and Medicine of Würzburg, December 1895, is published in *La Reforma Médica*, 1946, 32: 41-55.

DOUGLAS GUTHRIE. *A History of Medicine.* London: Thomas Nelson and Sons, Ltd. 1945. 448 pp. Illustrated with 72 plates. 30/–.

To perform its function well, a book review should proceed on several different levels. At the very simplest level, to do justice to both the author, and the potential reader, it should describe the contents of the book under consideration and make clear the intention of the author so far as it can be ascertained. But while it is important for a review to impart information, it is equally important to pass judgment on the book and to appraise it in terms of clearly perceptible frames of reference. Such an appraisal may be obtained by judging the book within the limits of the author's intention, or by applying a frame of reference that the reviewer believes to be more appropriate to the subject.

It is along these lines that I wish to discuss Dr. Guthrie's *History of Medicine.* In this volume, the author states, "an attempt has been made . . . to construct an outline of the progress of medicine from the days of Imhotep to those of Sir William Osler." Given this goal, from what point of view has the attempt been made to carry it out? "A history of medicine," says Guthrie, "should not be simply a chaplet of biographies nor yet a maze of dates and events, but rather a consecutive narrative, showing the progress of the healing art from the earliest times to the present day. The work of the leading scientists and practitioners, the fashions and sects in medicine throughout the ages, the geographical march of medicine from Greece to Salerno and Padua, and thence, by way of Leyden, to Britain and America, the epoch-making researches of Harvey and Claude Bernard, of Lister and many another—these are but a few of the topics which the historian must fit into his mosaic of medical history, each detail as it falls into place revealing a steady and natural sequence."

Accepting for the present this approach to the problem of writing medical history, it is fair to inquire whether the author has fulfilled his own program. To this our answer can only be a negative one. While this book is not "simply a chaplet of biographies nor yet a maze of dates and events," the author has not succeeded in integrating his materials even within the limits of his own intention. In fact the closer the reader approaches to modern times, the more confused does the presentation become. For example, let us take chapter IX, "Physicians of the Renaissance." The chapter opens witha discussion of Paracelsus and his views; this is followed by a description of Girolamo Cardano and his activities; and after this is presented an account of syphilis and Fracastorius. The scene then shifts to England with a discussion of the Royal College of Physicians, the universities of Oxford and Cambridge, the sweating sickness, early English medical books, and pediatrics in England. Other chapters exhibit a similar conglomeration of subjects without any logical connection. In the opinion of this reviewer, the basic defect of Dr. Guthrie's work is his lack of an adequate theory of medical history. A history of medicine can be written successfully as an outline, but it must be produced on the basis of a definite clearcut theory. As a very successful example, one may cite Singer's *Short History of Medicine* where "the history of Medicine"

is treated as "essentially a history of ideas." Guthrie's goal has been a more ambitious one, as is evident from his program quoted above, but he has not attained it.

It is the opinion of the present writer that a comprehensive history, such as Dr. Guthrie has attempted, can be written successfully only on the basis of a sociological theory of medical history which takes as its starting point the fact of the "patient" and the "physician" in society. On the basis of this approach, any given period would be discussed first in terms of the technological, political, social, economic and ideological background and development. From this the historian would proceed to study the "patient," that is, the people with whom the doctor was concerned, in terms of population structure and growth, vital statistics, occupation, and modes of life. This leads logically to the health problems of these people, as individuals and in the mass, namely, the kinds and prevalence of disease, epidemics, public health problems etc. The presentation of the disease problems brings up the subject of the "physician," that is, the medical profession which had to cope with these questions. Here belong such topics as the training of doctors (medical education), number of physicians, organization of the profession for social, economic and scientific purposes, medical societies and literature. Closely linked to this aspect is the problem of medical science. What did the doctors at any particular period know? What advances were made? What research was undertaken and what problems were solved? What influences impinged on these developments? To what extent were new discoveries accepted and applied? Finally, we come to the questions of the extent to which the medical profession actually coped with the health and disease problems of a particular period, and of the rôle of the state and other agencies in dealing with health problems.

The sociological theory of medical history has been presented here only in its barest outlines, but it is clear that it enables the facts of medical history to be organized and integrated in a coherent and meaningful pattern.

So far, Guthrie's *History* has been discussed from a general point of view. We must now call attention to various errors of fact and interpretation. On page 51, Strabo is mentioned as having lived at the time of Pericles; Strabo lived from 64 B. C.-21 A. D. On page 53, the Hippocratic Oath is discussed and the impression given that the Oath was produced in the 5th century B. C. No mention is made of Edelstein's monograph *The Hippocratic Oath* (1943) which pretty definitely dates the Oath as having originated in the 4th century. On page 56, there is a section on the importance of prognosis in Greek medicine, but no mention is made of Edelstein's study of *Airs, Waters and Places,* which explains the place of prognosis in terms of the social and economic position of the Greek doctor. On page 95 the statement is made that Maimonides "in his *Guide for the Perplexed* . . . reconciled religion with medicine . . . ." This is not true, for in this work Maimonides attempted to reconcile Jewish theology and Aristotelian *philosophy,* not medicine. On the same page occurs the statement that all the works of Maimonides were written in Arabic, a few were translated and printed in Latin, but *no English translation is available.* This is not true of the *Guide for the Perplexed* which is available in English.

The statement is made on page 152 that "Woodall is sometimes credited with the discovery of lime or lemon juice as a cure for scurvy . . ." The fact of the

matter is that John Woodall specifically recommends lemon juice, but he had been preceded by the Dutch and by his own countryman Sir James Lancaster in this practice.

On pages 165-6 Fracastorius is credited as the first to recognize typhus fever. How about Cardano who described it in 1536?

On page 190 occurs the curious statement that Robert Hooke was the first to use the term "cell," "thus anticipating the cell theory of Virchow by many years." Does Guthrie mean the cell theory of Schleiden and Schwann? If he does, Hooke did not anticipate it.

On page 250, it is stated that John Fothergill befriended John Morgan and William Shippen, and exerted his influence with *William* Penn on their behalf. It is *Thomas* Penn, who is meant.

The statement is made on page 260 that Ramazzini published *"the first book to be written on diseases of occupation."* This assertion is true if the writer meant the first comprehensive treatise. It is not true otherwise, because other writers e. g. Ellenbog, Paracelsus, etc. had written books on diseases of occupation.

Guthrie gives Charles Bell complete credit for the discovery of the functions of the spinal nerve roots. The reader should, however, consult the account given by Olmsted in his biography of François Magendie for a judicious presentation of this topic.

On page 272, Guthrie states that, as a student in Berlin, Henle had come under the influence of Johannes Müller. This is untrue, for Henle already worked together with Müller at Bonn. In fact, Guthrie contradicts himself, for on page 273 he states that Jacob Henle assisted Müller at Bonn where the latter began his academic career. The interested reader may refer to Wilhelm Haberling's *Johannes Müller* for an account of the relations between Müller and Henle.

On page 278 Hughes Bennett is given credit for the discovery of leukemia in 1845. No mention, however, is made of Virchow who described this condition independently at the same time. He is mentioned as the first to record leukocytosis. Does Guthrie mean leukemia here?

On page 280, Dr. Guthrie speaks of Claude Bernard's discovery of an "internal secretion" or *milieu intérieur*. These two concepts are not identical. The *milieu intérieur* — internal environment, indicates that phenomena peculiar to living beings, particularly higher animals, mammals, take place in a perfected internal organic environment.

On page 282 we are informed that Rudolf Virchow was sent to investigate an epidemic of typhus in Silesia. "His report revealed such deplorable social conditions, and his recommendations were so revolutionary that the responsible authorities banished him from Berlin." This compression of the facts distorts the situation completely. Virchow went to Silesia in 1847. On his return he engaged in politics in 1848, publishing his journal, *Die Medizinische Reform*. It was only after the collapse of the 1848 Revolution that he was punished. But even then he was never actually banished. His salary was reduced, his quarters in the Charité were taken from him, and his work was interfered with.

Dr. Guthrie makes no mention in his book of the Romantic Movement in medicine. It is a curious way to write history, by omitting that which does not fit into the picture of medical "progress."

On page 299, referring to Daniel Drake, there occurs the assertion that "The story of his work is described in his *Pioneer Life in Kentucky.*" This is inaccurate, as this book deals only with Drake's youth until he begins his medical studies.

On page 313 we meet the statement that "Autobiographies of medical men are all too rare." Perhaps, but this writer is acquainted with several hundred medical autobiographies.

On pages 328-329 mention is made of Ernst von Bergmann, but as authority for the statement, the reader is referred to *Besonnte Vergangenheit* by C. L. Schleich. Why doesn't the author refer to the biography of von Bergmann by A. Buchholtz (1912) which contains his letters? Similarly on page 361 why doesn't Guthrie refer the reader to the *Memoirs* of Ronald Ross, instead of to R. L. Megroz, *Ronald Ross, Discoverer and Creator,* a secondary source.

The *Leonhard* Heubner mentioned on page 368 should be *Otto* Heubner, as he is generally known. Heubner's full name was Otto Leonhard Johann Heubner.

On page 372 the statement occurs that Pinel removed the chains from mental patients at the Bicêtre in *1798.* This is five years too late. Pinel performed this historic act in *1793.*

On page 388 we learn that Edwin Chadwick by his continued insistance on what he called "the sanitary idea" persuaded the government to appoint a Sanitary Commission in 1839. In connection with this idealistic interpretation it may be useful to point out that Chadwick as a member of the Poor Law Commission,—one of the Three Bashaws of Somerset House, as the Commissioners were known among the workers—wrote to Lord John Russell that is was necessary "to prevent circumstances which, by causing epidemics, threw a burden upon the poor-rates." Clearly, it was a "sanitary idea" based on an economic foundation.

Also on page 388 it is said that John Snow's suggestion to remove the handle of the Broad Street pump "was adopted with excellent results." The fact of the matter is that the epidemic had already started to decline even before the pump handle was removed, a fact which Snow himself emphasizes.

From the above it should be abundantly clear that Guthrie's *History of Medicine* is defective in many points, and should be thoroughly checked when a second edition is issued.

GEORGE ROSEN.

JOHN W. DRAPER. *The Humors and Shakespeare's Characters.* Durham, North Carolina: Duke University Press, 1945. vii + 126 pp. $2.00.

This book condenses, and at the same time extends, Professor Draper's previous studies of the humors in Shakespeare. While the earlier essays are concerned with individual figures, the present investigation surveys the field systematically. It reconstructs from the scientific literature of Shakespeare's time the main psychological types as they must have been known to the poet and to his audience, and uses these prevailing doctrines as a basis for the interpretation of over a hundred characters of the various plays, without the intent of proving Shakespeare's dependence on any specific books or writers.

The value of such an inquiry is great indeed, for it proves that "Shakespeare's

use of humoral terms and concepts is . . . not only a major but also a permanent aspect of his dramatic art" (p. 115). It is true, direct references to the humors are surprisingly rare in Shakespeare's works (pp. 10; 18; 44; 62; 94), and the physiognomic features characteristic of the various types are mentioned even less frequently (pp. 21 f.; 32; 89). But the mental physique of the *dramatis personae* is reflected in their actions and moods; one can deduce who they are from what they do and feel, and when the analysis is undertaken by an expert like Professor Draper, who has equal knowledge of the literary and the scientific material, convincing results cannot fail to ensue.

The author's method and skill, I think, show to their best advantage in those chapters which deal with the basic simple types, the sanguine, phlegmatic, choleric, and melancholic (chap. II-V). Innumerable textual details which the reader of today might overlook are here evaluated in their original psychological and physiological meaning. Sometimes one feels that other implications should have been considered too. For instance, Cleopatra is probably delighted to hear that her rival Octavia has a round face and brown hair, not only because these traits betray Octavia's "phlegmatic type under Venus" (p. 34), but also because she herself, whom Shakespeare pictures as a "gipsy," an "Egyptian," has a long face and black hair and holds them more beautiful! Generally speaking, however, Professor Draper succeeds in his endeavor to restore the psychological motivation and *vraisemblance* of the plot, evident to the Elizabethans and lost on the moderns (p. 28).

As regards the more complex and less common types, the perfectly balanced temperament and the extremely unstable one (chap. VI), some difficulties arise. Astrologers did not believe that a balance of humors could ever prevail; physicians admitted that it was a rare occurrence (pp. 81 ff.). Professor Draper finds only one example of the ideal type in Shakespeare: the figure of Horatio (pp. 84 ff.). Though I am not an adept in Shakespeare's poetry, nor in the history of the theory of humors, and can speak only with diffidence, I cannot help wondering why Brutus is not mentioned in this connection. Are the elements, in him, not mixed in such a way "that Nature might stand up, and say to all the world: This was a man"? That he should be sanguine, as Professor Draper maintains (pp. 25 f.), I find hard to believe. On the other hand, the great number of unstable characters which the author cites (pp. 87 ff.) suggests that Shakespeare gave more credit to the astrological doctrine than one would infer from a previous statement of Professor Draper (p. 20), for the inconsistency of these men is determined by the influence of their guiding star, Mercury. Jacques' speech on the *Seven Ages* is another indication of the poet's interest in astrology, as Boll has so lucidly shown in his famous essay on *Die Lebensalter*.[1]

One of the most important results of Professor Draper's study seems to me his conclusion that it is only the minor characters of the plays that agree with the patterns established in the scientific literature, while the major characters transcend the elementary types distinguished by physicians and astrologers (p. 94). Not only is the poet aware of the circumstance that men may pretend to have humors which

[1] F. Boll, *Neue Jahrbücher für das klassische Altertum*, XXXI, 1913, pp. 131 ff.

they actually do not have because it suits their purposes (chap. VII), in addition to these "counterfeit humors" he knows also of changing humors (chap. VIII), that is, of changing and discordant temperaments; and all the great figures must apparently be classified as such (p. 94). Shakespeare is not a scientific mechanist (p. 117); his characters are not slaves of their humors as are those of Jonson (pp. 94; 117). This fact indicates a certain opposition on the part of the poet to the common view of renaissance writers who uphold the unchangeability of types. Professor Draper argues that humoral psychology in itself is "less deterministic and so more Christian" (p. 116) than is belief in astrology. To be sure, astrologers are unrelenting in their belief in the immutability of the character, whereas some physicians admit that humors may change within the span of a lifetime, or may be controverted by untoward events (pp. 106 f.). Yet the gist of the humoral theory to the Elizabethan authors was that man is ruled by his temperament. These writers, like so many of their predecessors, had forgotten the truth of which Galen, their authority, was so well aware: that determination by bodily factors and freedom of will are not mutually exclusive, that man is at the same time the slave and the master of his temperament.[2] What Galen knew as a Platonic philosopher, Shakespeare, I think, discovered as a great poet. He made use of the scientific, or pseudo-scientific theories of his time as far as he thought them valid, but neither did he hesitate to make them subservient to his higher insight into human nature. Professor Draper has shown how much the poet learned from others. I wish he would now undertake to amplify his suggestions as to what Shakespeare taught his own generation, and all those to come, about man, his fate, and his liberty.

LUDWIG EDELSTEIN.

PIERRE SCHMID. *Contributions à la critique du texte de Caelius Aurelianus.* Neuchâtel: 1942. xii + 111 pp. [Dissertation, University of Neuchâtel.]

The loss of Soranus' treatises on Acute and Chronic Diseases gives to Caelius Aurelianus' extant Latin translations of these works an important place in medical history. They afford our best insight into the Methodist school of Greek medicine; they preserve—thanks to Soranus' historical interests—considerable material from the now lost works of famous physicians; and they are an important element in the transmission of Greek medicine to the Middle Ages. Apart from their importance for the medical historian, these treatises of Caelius contain much to interest the historian of the Latin language.

Dr. Schmid's excellent study of the text of Caelius is therefore particularly welcome. The dissertation is divided into two parts, (1) a study of the textual tradition, direct and indirect, and (2) proposed emendations of passages in Book I of the Acute Diseases.

The author's investigations confirm the view long held that of all the printed editions of Caelius' treatises only the first editions were directly based on manuscripts. The study also confirms Ilberg's conclusion that these first editions, *viz.*

[2] For Galen's theory of humors, cf. Major Greenwood, *The Medical Dictator*, 1936, pp. 33 f.

Sichart's edition of the Chronic Diseases, and Winter's of the Acute Diseases, together with three manuscript leaves discovered in 1921 offer a solid basis for the constitution of the text.

The author examines the writings that go under the name Aurelius, Esculapius, and Gariopontus (Passionarius Galeni) and by a close study of the language clarifies the relation of these texts to that of Caelius.

The emendations proposed by Dr. Schmid show a penetrating study of the idiom of Caelius and the other relatively late Latin translators of Greek medical works. These emendations restore sense to a considerable number of passages in Caelius and help to remove some of the obscurity which surrounds this basic text.

I. E. DRABKIN.

H. W. TURNBULL. *The Mathematical Discoveries of Newton.* London and Glasgow: Blackie & Son Limited, 1945. viii + 68 pp. 5 shillings.

The two lectures of which this slender volume consists were delivered in 1942 by a distinguished mathematician before mathematical societies in celebration of the tercentenary of Newton's birth. The lectures deal with Newton's contributions to algebra, geometry, and the calculus. Though the exposition is technical and of special interest to mathematicians, it conveys even to others some sense of Newton's genius for generalizing what had previously been considered only as particular, and for developing universal methods to deal with the newly conceived general problems.

I. E. DRABKIN.

EDWARD J. STIEGLITZ. *A Future for Preventive Medicine.* New York: Commonwealth Fund, 1945. 77 pp. $1.00.

The basic theme of Dr. Stieglitz's little essay is that the preventive medicine of the future must focus its chief attention on the control of the diseases of the later years of life. Since these diseases are not infectious, they cannot be conquered through conventional public health controls of the environment; they must be handled through promotion of positive health in the individual on a personal basis.

The volume starts with some definitions of preventive medicine, continues with a brief description of health trends over the last forty years, and concludes with a program of preventive medicine requiring "periodic health inventories," better health education of the public, more research in the degenerative diseases, and emphasis on the responsibility of the individual for his own health. The book closes on a note of confidence for the future of this broad conception of preventive medicine.

It is unfortunate that the presentation of so sound a thesis is marred by a number of concepts that really have little place in scientific health thinking. As though not content to establish the importance of promoting positive health in the individual and strengthening his resistance to disease from any source, Dr. Stieglitz attempts to prove that the complementary approach—control of the environment—

has, indeed, been faulty. One wonders what motivates such reckless demonstrations of social Darwinism as: "Our exaggerated, beautiful, chivalrous attitude, symbolized by the story of the Good Samaritan, has led society in general and medicine in particular to direct effort more and more toward promoting the survival of every individual without discrimination . . . It is time that mankind became aware of the serious hazard in so actively encouraging and abetting the survival of the relatively unfit. . . ." In what community would the writer have us stop pasteurizing the milk supply so that the "unfit" might be carried off by enteric fevers? It is difficult to find greater evidence of "fitness" in communities or nations whose infants die of environmentally controllable hazards than in places where these hazards have been conquered.

Not content, moreover, to show that impersonal control of the environment is ineffective against the diseases of later life, Dr. Stieglitz swings again to the opposite extreme and insists that only a supremely personal approach is proper; organized social action is worthless. It is a little surprising that a specialist in chronic diseases should fail to explain that a substantial part of the increase of heart disease or diabetes, for example, is due not to the simple aging of the population but to age-specific increases as well. In other words, something about the way we live as a "civilized" society appears to be associated with an increased occurrence of certain degenerative diseases, aside from the mere aging of the population. Once clearly recognized, why can these factors not be subjected to social control? Short of such an etiological approach, mass case-finding programs can lead to early treatment and arrest or retardation of certain disease processes. The actual effectiveness of "en masse and routinized diagnostic procedures" in the early detection and control of tuberculosis, cancer, or occupational intoxications is ample evidence that this technique is far from "worthless." Similar procedures are already being applied to heart disease on a research basis.

But granting the eventual need for an individualized approach, to follow up the coarse screening of any mass procedure, how can it best be achieved? Hardly by the writer's outright rejection of organized programs of medical care financing which would eliminate the cash barrier to adequate service from physicians. The great obstacle to Dr. Stieglitz's own program of "health construction" is the inability of the great majority of our population to pay for regular and good medical care. World experience, as well as American, has shown that broad programs of health insurance are the most practical solution in an industrialized economy.

It is not necessary to pose any contrasts, as does the writer, between social responsibility on the one hand, and individual responsibility, on the other. One does not preclude the other. It is hard to see how the moral fibre of our nation has suffered because free public education is provided to all or because the uncertainties of old age are buffered for many by social insurance. On the contrary, man has achieved his greatest personal dignity in the group action called for by Christianity and embodied in democracy.

What Dr. Stieglitz fails to appreciate is that the "personal effort" he considers essential in the quest for health is no less real, merely because it may be put forth on a group basis. Perhaps at the root of the author's rugged individualism is a

somewhat aristocratic disdain for the common people whom, as Lincoln said, "God must have loved—he made so many of them." There seems to be little effort to conceal such an attitude in lines like: "People rarely become enthusiastic about anything which involves real effort on their part . . . the assumption that people have a 'right' to health is as false as the notion that everyone is entitled to freedom from want . . . of course, the indolent of the electorate are pleased with the idea of getting something for nothing . . . ."

Other specialists in chronic diseases, like Dr. Ernst Boas, have emphasized the importance of geriatric medical care in the preventive medicine of the future. But they have recognized that the availability of such care will depend on the elimination, through public action, of the economic handicaps of contemporary private medicine. It is regrettable that Dr. Stieglitz did not see this and that the effectiveness of his pleading of the same geriatric cause should have been vitiated by so many hangovers of a social philosophy of the Age of Kings.

MILTON I. ROEMER.

CONTRIBUTORS TO THIS NUMBER

PAUL E. BECHET, M. D., is a dermatologist. His address is 1364 North Avenue, Elizabeth, N. J.

Mrs. MARGARET N. BURKE is from the Richmond Academy of Medicine, 1200 East Clay Street, Richmond, Va.

I. E. DRABKIN, Ph. D., former Carnegie Fellow in the History of Graeco-Roman Science at the Johns Hopkins Institute of the History of Medicine, now resides at 44 West 96th St., New York 25, N. Y.

LUDWIG EDELSTEIN, Ph. D., is Associate Professor of the History of Medicine at the Johns Hopkins Institute of the History of Medicine, 1900 E. Monument St., Baltimore 5, Md.

WILLIAM DEPREZ INLOW, M. D., is head of the Division of Surgery, The Inlow Clinic, 103 West Washington Street, Shelbyville, Indiana.

R. R. JAMES, F. R. C. S., is senior editor of the British Journal of Ophthalmology. His address is Bryn, Woodbridge, Suffolk, England.

LEWIS J. MOORMAN, M. D., is Editor-in-Chief of the Journal of the Oklahoma State Medical Asociation. His address is 304 Osler Building, 1200 North Walker, Oklahoma City 3, Okla.

MILTON I. ROEMER, M. A., M. D., D. P. H., is Senior Assistant Surgeon (R), U. S. Public Health Service. His address is 2701 31st St., S. E., Washington 20, D. C.

Captain GEORGE ROSEN, M. D., Ph. D., is Editor of the new Journal of the History of Medicine. His address is 285 Riverside Drive, New York 25, N. Y.